GESNERIADS

The Journal for Gesneriad Growers

Vol. 60, No. 3 Third Quarter 2010

Chautemsia calcicola

The Gesneriad Society, Inc.

A non-profit membership corporation chartered by the State of Missouri

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Gesneriad Hybridizers Association — *CrossWords,* 3 issues, $8 ($9 outside USA). Send to Martha Lacy, 260 Stoddards Wharf Rd., Gales Ferry, CT 06335 <wlacy@snet.net>.

Newsletter Editors — *Newsviews*, free to editors; $6 subscription to others. Contact Leslie Milde, 373 Main St., P.O. Box 14, Fremont, NH 03044 <meribush@aol.com>

Gesneriphiles Internet Discussion Group — Visit the website for instructions about joining the list: <http://lists.ibiblio.org/mailman/listinfo/gesneriphiles>

British Streptocarpus Society — <www.streptocarpussociety.org.uk> To join from the USA/Canada send $12 check payable to Dale Martens, 1247 Island View Dr., Sherrard, Illinois 61281. To join from any other country, send £8 or 12€ to Peter Pinches, 72 Coopers Rd., Handsworth, Birmingham, England B20 2JX.

Gesneriad Research Center at the Marie Selby Botanical Gardens — 811 South Palm Avenue, Sarasota, FL 34236 (941-366-5731) <www.selby.org> GRC Director: Dr. John R. Clark, PO Box 48721, Sarasota, FL 34230 <johnrobertclark@gmail.com>

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Second Quarter .... January 1
Third Quarter .... April 1
Fourth Quarter .... July 1

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OBJECTS OF THE SOCIETY — The objects of The Gesneriad Society are to afford a convenient and beneficial association of persons interested in gesneriads, to stimulate a widespread interest in, gather and publish reliable information about the identification, correct nomenclature, culture and propagation of gesneriads; and to encourage the origination and introduction of new cultivars.

GESNERIAD REGISTRATION — The Gesneriad Society, Inc. is the International Registration Authority for the names and cultivars of gesneriads excepting the genus *Saintpaulia*. Any person desiring to register a cultivar should contact Judy Becker, 432 Undermountain Road, Salisbury, CT 06068 <hybridregistrar@gesneriadsociety.org>.

www.gesneriadsociety.org

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COVER

Chautemsia calcicola – a new genus/species discovered in Brazil (story on page 15)
(photo by Pablo Hendrigo)

President's Message

Peter Shalit <president@gesneriadsociety.org>
Seattle, Washington, USA

Do you remember Round Robin Letters? Unless you're a long-time member of The Gesneriad Society, you probably don't. Round Robins were a staple of our Society in the days before the Internet, when everyone used postal mail. A Round Robin consisted of 6-12 people who shared correspondence in a big loop. Every few months a packet of letters would come, including one letter from each person in the Robin, often with photos enclosed. You would remove your old letter, write a new one to add to the packet, and send it on to the next person. Then in the 1990's, along came email and listserves, and the need for Round Robins evaporated. Some folks miss them, but to most of us who use email they are no longer needed. This is called "change." Sometimes it's painful, but there is the danger of becoming irrelevant if one resists the forces of change.

New ways of communication have brought positive changes for our Society. We now have a website <www.gesneriadsociety.org> that introduces our Society and our plants to people around the world. Our website continues to grow and evolve as new needs and new technologies appear. Some of our members have their own excellent gesneriad-oriented sites as well. We have blogs, such as my own <gezprez.blogspot.com>, as well as the excellent blogs of several of our members.

Much as we used to enclose photos with our Round Robin letters, now we share pictures online, using services such as Flickr and Picasa. Go to one of these sites and search "gesneriad" and you will find all sorts of great photos. Online video is the next frontier. I have started using YouTube to publish short gesneriad-related videos. Go to <http://tinyurl.com/PSGS2010> to see my videos of prizewinning plants in the Puget Sound Chapter's recent show. Look for more gesneriad-related videos to appear on YouTube and similar sites.

Social networking is a new and growing phenomenon on the Web. Your Society now has a Facebook page: <facebook.com/gesneriads>. Check it out and become a fan of our Society on Facebook. We hope our Facebook page will introduce new folks to our Society and our plant family.

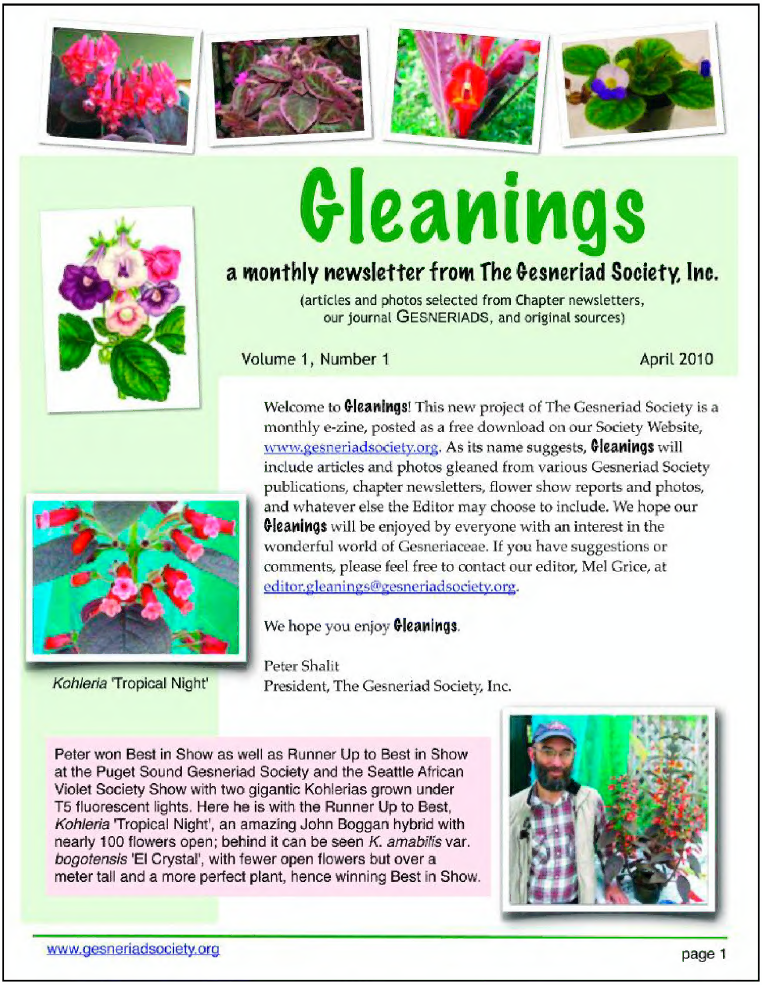
Electronic publishing is less expensive than print, both to create and to distribute. Many chapters, as well as the Gesneriad Hybridizers Association and our Judges Interest Group, now publish their newsletters in electronic (pdf) format. For a few years now, our members have been able to download electronic copies of our journal as a benefit of membership. In a new effort, we have started to publish a free newsletter called "Gleanings," which is now available to members as well as nonmembers as a downloadable pdf from our website. "Gleanings" will include excerpts from our journal, articles from chapter newsletters, color photographs, and more.

At the Board's recent Retreat, your Board of Directors established a new membership option that we have named "Green Membership." The dues will be lower than any existing membership category, and the price will be the same for members all over the world. Of course standard membership, including a printed and mailed subscription to GESNERIADS, will remain available. Green Members will receive GESNERIADS in electronic form, via email, and the Web. The final details are being worked out and Green Membership will be available no later than January 2011. It will be offered as an option to all prospective new members as well as to existing members at the time of renewal. We are hoping that this lower-cost plan will encourage more new members to join and more existing members to renew, while saving a few trees in the process.

Innovations such as our high-quality website, our Facebook page, our free "Gleanings" newsletter, and Green Membership are examples of how The Gesneriad Society is staying current and relevant as times change.

Good growing,

Peter



Gleanings

a monthly newsletter from The Gesneriad Society, Inc.

(articles and photos selected from Chapter newsletters,
our journal GESNERIADS, and original sources)

Volume 1, Number 1 April 2010

Welcome to **Gleanings**! This new project of The Gesneriad Society is a monthly e-zine, posted as a free download on our Society Website, www.gesneriadsociety.org. As its name suggests, **Gleanings** will include articles and photos gleaned from various Gesneriad Society publications, chapter newsletters, flower show reports and photos, and whatever else the Editor may choose to include. We hope our **Gleanings** will be enjoyed by everyone with an interest in the wonderful world of Gesneriaceae. If you have suggestions or comments, please feel free to contact our editor, Mel Grice, at editor.gleanings@gesneriadsociety.org.

We hope you enjoy **Gleanings**.

Peter Shalit
President, The Gesneriad Society, Inc.

Kohleria 'Tropical Night'

Peter won Best in Show as well as Runner Up to Best in Show at the Puget Sound Gesneriad Society and the Seattle African Violet Society Show with two gigantic Kohlerias grown under T5 fluorescent lights. Here he is with the Runner Up to Best, *Kohleria* 'Tropical Night', an amazing John Boggan hybrid with nearly 100 flowers open; behind it can be seen *K. amabilis* var. *bogotensis* 'El Crystal', with fewer open flowers but over a meter tall and a more perfect plant, hence winning Best in Show.

www.gesneriadsociety.org page 1

Cover page of the first issue of *Gleanings*

Board Retreat attendees visiting Kartuz Greenhouses

Retreat Board Review 2010

Allison Brigham, Recording Secretary, The Gesneriad Society
Golden, Colorado, USA

The Gesneriad Society Board of Directors held a mid-year Retreat and Board Meeting during February 2010. Informal brainstorming and problem-solving sessions were conducted on 12 February 2010 in La Jolla, California. These sessions produced a list of "action items" to be carried out by Board Members over the next several months, as well as proposals for official actions of the Board (Motions) to be addressed the following day.

The official Board Meeting was held on 13 February 2010 at the San Diego Botanic Garden, Encinitas, California, USA. President Peter Shalit presided.

The Board approved holding unused monies from sponsored convention Flower Show awards and using them at the discretion of the Awards Chairperson for awards at subsequent convention flower shows.

Addressing an issue that arose in this past year, the Board voted to include the Development Chairperson in any discussion pertaining to the external use by horticultural organizations of the Society's membership list.

Clarifying the recent efforts to form a Conservation Committee, the Board endorsed the formation of the Gesneriad Conservation Alliance to facilitate the conservation of gesneriads in cultivation. The new organization represents collaboration between The Gesneriad Society and the Gesneriad Research Center at the Marie Selby Botanical Gardens in Sarasota, Florida.

An electronic gesneriad newsletter is planned as an affordable, novel means of stimulating interest in gesneriads and membership. The free document will follow a chapter-type newsletter format and be available as a free download from our Website, available to members and nonmembers alike. Subscribers will be alerted to each new issue via a broadcast email.

Continuing its efforts to provide cost effective and environmentally aware access to the Society's journal GESNERIADS, the Board approved creation of a new electronic delivery option to be effective no later than 1 January 2011. The electronic files will contain images of higher resolution than at present. Members choosing this option, to be known as "Green Membership," will receive the journal electronically rather than the print version. Dues will be lower than for a standard membership that includes a printed/mailed journal, and will be the same for all members both outside and inside the United States.

In its final action, the Board expressed appreciation to the San Diego Botanic Garden for allowing the Society to hold its mid-year Retreat there by approving a donation in recognition of its hospitality in providing meeting space, waiving the entrance fee for attendees, and offering an informative guided tour of the gardens and collections.

Board members on tour at the San Diego Botanic Garden

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Color Photo Sponsorships

Color covers (front and back) sponsored by the San Francisco Gesneriad Society in memory of long-time chapter members Robert Louis Hudak and Celine Chase

Color photo on page 30 sponsored by the Peninsula Gesneriad Society in memory of Celine Chase

Seed Fund

Carolyn Ripps <rippscs@aol.com>
Gussie Farrice <f.farrice@verizon.net>

We have been thinking about the line in an old song "Where have all the flowers gone?" We were wondering the same thing. In 2009, the Seed Fund sent 5,244 seed packets out into the world. Since most packets contained between 15 and 25 seeds – let's say an average of 20 – that represents 104,880 gesneriad seeds. So what happened to them?

How many failed to germinate for some reason and of those that did germinate, how many grew into plants? Only a relatively small percentage of our members exhibit at flower shows and conventions, and even fewer donate seeds back to the Seed Fund.

Surely there are thousands of nice gesneriads lurking out there somewhere. Even if your plants aren't show-quality specimens, a nice flower picture posted on the Internet will be enjoyed by all. And a picture of an unusual plant may tempt someone else to try growing something new. Why don't more of you try to pollinate your flowers and send seed back to the Seed Fund? We can use fresh, correctly identified gesneriad seed of all types except *Saintpaulia* hybrids.

Perhaps you didn't have much success in growing from seed. The most common errors that people make are burying the seeds instead of just sprinkling them on the surface of the moist soilless mix, or letting the seed containers dry out. Remember that gesneriad seed may take several months to germinate, so be patient and keep the mix moist and enclosed in a clear plastic bag or box.

Recent donations from the following are gratefully acknowledged: Francisco Correa, Jacquie Eisenhut, Frank Kahn, Mike Kartuz, Jeanne Katzenstein, Ingrid Lindskog, Leong Tuck Lock, Mauro Peixoto, Leonard Re, Carolyn Ripps, Charlie Rose, and Marie Selby Botanical Gardens.

Send orders for species seed to:
Carolyn Ripps, 21 Sprain Road, Hartsdale, NY 10530

Seed Packets — $2.00 each

Please
- To pay by credit card, send your credit card number, expiration date, and signature, and indicate if the card is Mastercard or Visa ($6.00 minimum)
- Make checks payable to the The Gesneriad Society in U.S. funds
- Provide a self-addressed, stamped envelope (non-U.S. orders will have the postage added to their credit card bill)
- List alternate choices
- Include your membership number (first number on your mailing label)

Note
- There is a limit of one seed packet of a single variety per order
- There is a limit of 25 seed packets per order
- There is a household limit of 50 seed packets per calendar year

Seed Fund – Species

Achimenes (D)
admirabilis (B,F,L)
cettoana (B)
erecta (B)
erecta 'Tiny Red' (F,L)
- *grandiflora* (B,F,LM)
- *grandiflora* 'Robert Dressler' (B)

longiflora (B)
longiflora alba (B)
mexicana (B)
Aeschynanthus (B)
batakiorum
- *boschianus*

evrardii
fecundus SEL1974-2907-A
fulgens USBRG82-271
- *garrettii* (B)

gracilis 'Pagoda Roof'
- *hartleyi*

humilis USBRG94-214
hosseusii
lobbianus 'Radicans'
longicalyx
longiflorus
- *musaensis*

parvifolius
sp. MSBG87-162
- sp. Cameron Highlands
- sp. Mt. Batupasak HW12587

sp. (red) / Philippines
- sp. (like slender *longicalyx*)

Agalmyla
- *parasitica* HW12714/Mt. Salak (B)

Alsobia (B)
dianthiflora
- *punctata*

sp. 'Chiapas'
Amalophyllon (D,H,L)
- *clarkii* USBRG 96-336

divaricatum (*Phinaea divaricata*)
- *rupestre* RM2006-1 /Belize

Anodiscus (see *Gloxinia*)
Besleria
comosa JLC9931 (T)
laxiflora GRF9675 (M)
melancholica (MT)
- *solanoides* GRE10975 (G,T)

cf. *divaricata* JLC5629
- sp. JLC5705
- sp. JLC6113

Boea
hemsleyana
- *hygroscopica*

Briggsia (A,R)
- *aurantiaca*

muscicola
- species #2

Chirita
caliginosa (LM)
- *eburnea* (blue) (F,R)

flavimaculata USBRG94-085 (R)
- *gemella*
- *hamosa* (F,M)

involucrata (F,L)
- *involucrata* (dark blue)

lavandulacea (LM)
- *liboensis* (white veined) (H,L)
- *longgangensis*
- *lutea* (formerly *C. eburnea* yellow) (F,R)

micromusa (F,L)
- *pumila* (F,L)
- *pumila* USBRG2000-18 (F,LM)
- *sericea* (L,R)
- *spadiciformis* (L,R)
- *subrhomboidea* (F,R,L)

tamiana USBRG98-080 (F,R,P)
- *viola*
- species (Thailand)
- species (blue) from Phuket

Chrysothemis (F,LM)
friedrichsthaliana
- *pulchella* (Ecuador)

villosa
Codonanthe (B)
calcarata 'Puyo'
crassifolia
crassifolia 'Cranberry'
devosiana 'Frances Batcheller' (B,F)
devosiana (*paula*)
devosiana (pink) MP0018
devosiana SEL 1997-0120A
- *erubescens* ABG 89-0836 (B)

gracilis
gracilis 'Kautsky Red Leaf' MP0016
- *venosa*

Columnea (B)
angustata (*Pentadenia*)
brenneri JLC9833
byrsina (*Pentadenia*) (L)
citriflora (*Trichantha citrina*)
crassicaulis (*Pentadenia*)
crassifolia
- *dodsonii*

eburnea (*Dalbergaria*)
fawcettii
- *filamentosa* (*Trichantha filifera*) JLC6500

flexiflora (*Trichantha dodsonii*) (LM)
glicensteinii
hirta
- *inaequilatera* (*Dalbergaria*) JLC6072
- *lehmannii* GRE11180
- *linearis*

maculata

- *oerstediana*

orientandina (*Pentadenia*) (LM)
ornata (*Dalbergaria*) GRF2665
oxyphylla
polyantha (*Dalbergaria*)
purpusii

- *rubriacuta* GRE11195

sanguinea (*Dalbergaria*)
sanguinea (*Dalbergaria*) 'Orange King' GRF9492
sanguinea (*Dalbergaria*) (yellow)
scandens var. *fendleri*

- *schiedeana* 'Huatusco' (yellow) (B)

spathulata (*Pentadenia*) GRF9503 (LM)
spathulata (*Pentadenia microsepala*) W1837
spathulata (*Pentadenia zapotalana*)
strigosa (*Pentadenia*) GRF95154
sulfurea

- *tandapiana*
- sp. aff *picta* GRE11104

Corytoplectus
cutucuensis (L)
cutucuensis GRF9794
speciosus JLC9969

Crantzia
tigrina

Cremosperma
castroanum GRE11056 (L,H)

Cyrtandra
cupulata (G,H,MT)
subulibractea JRC788 (T)

- sp. (white) /Java (T)

Dalbergaria (see *Columnea*)

Diastema (D,F,P)
affine JLC9964
latiflorum GRF 9669A (F,H,L)
racemiferum JLC9824
vexans

Didymocarpus

- *cordatus* (G,T)
- *sulfureus*

Drymonia
affinis GRF98109
coccinea GRF9873
coccinea JLC9980 (T)
coccinea var. *fusco-maculatus*

- *conchocalyx* 'Silver Lance' (T)
- *coriacea* GRE11039

doratostyla GRF9674 (B)
hoppii JLC9863
mortoniana (L)
pulchra GRF98113
rhodoloma ABG90-0528
serrulata (B)
serrulata GRF9752
strigosa (B)

- cf. *ecuadorensis* JLC6185

sp. (*umecta* ined.) (B)

Episcia (H,L,B,F)

- *xantha*
- *cupreata*

Epithema
sp. / N. Perak (M)
sp. (blue) /N. Perak (M)

Gasteranthus

- *atratus*

Gesneria (H,F)
acaulis (M)
christii (LM)
citrina

- *cuneifolia* (L)
- *cuneifolia* 'Quebradillas' (L)

cuneifolia 'Tom Talpey' (L)
humilis
pedunculosa USBRG97-102 (S,T)

- *rupincola*

ventricosa (M)

Glossoloma (Alloplectus)
bolivianum USBRG95-140 (M)
ichthyoderma JLC9836 (T)
scandens GRE11235
cf. *panamense* GRE11118

Gloxinella (Gloxinia) (D)
lindeniana (F,L)

Gloxinia (D)
perennis (LM)
perennis 'Insignis' (L)
xanthophylla (*Anodiscus*) (M)

Gloxiniopsis (Gloxinia) (D)
racemosa (L)

Haberlea (A,R)
rhodopensis

Hemiboea (D)

- *strigosa*

subcapitata (L)

Henckelia

- *albomarginata* (H)
- *hispida* (H)
- *malayana* (H,M)
- sp. LTL0406 (LM,R)

Heppiella (D)
ulmifolia GRF98172

Kohleria (D)
allenii (T)
aff. *amabilis* 'Panama Pink'
hirsuta
peruviana

Monophyllaea
hirticalyx (L,U)
horsfieldii (U)

Nautilocalyx
adenosiphon

- *mellitifolius*

Nematanthus
albus (sp. "Santa Teresa") (B)
australis (B)

- *brasiliensis*

fissus GRF9938

- *fluminensis*

- *fornix*
- • *fritschii*
- • *punctatus* MP0052
- • *sericeus* (B)
- • *strigillosus* 'Ibitipoca' (B)
- *wettsteinii* (B)

Neomortonia
- *nummularia*

Opithandra
- • *primuloides*

Ornithoboea
- *arachnoidea*
- *wildeana* (LM)

Paraboea
- • *capitata*
- • sp. (green leaf)
- • sp. (silver leaf)

Paliavana (S,T)
- *prasinata*
- *prasinata* GRF732
- • *plumerioides* (Cabral)
- *tenuiflora*

Paradrymonia
- • *ciliosa*
- *decurrens* (L)
- • sp. JLC5731 (F,P)

Pentadenia (see *Columnea*)

Phinaea (D,F,P)
- *albolineata*
- *multiflora* 'Tracery'
- • *pulchella* JLC10538 (F,H,L)

Primulina
- • *tabacum* (F,L,R)

Ramonda (A,R)
- • *myconi*
- *myconi* —
  - white
  - lavender
  - pink
- • clone G

Rhabdothamnus
- *solandri* (G,T)

Rhytidophyllum (G,H,S,T)
- *auriculatum*
- *tomentosum*
- *villosulum*

Ridleyandra
- • *morganii*
- • *quercifolia*

Rufodorsia (F,LM)
- • *minor*

Saintpaulia (F,R)
- 3. *shumensis*
- • 5a. cl. *grandifolia* No. 299
- 5b. cl. *difficilis* Mather No. 2
- • 5b. cl. *grotei* Protzen
- 5b. cl. *grotei* Silvert (F,L,R)
- • 5c2. cl. *diplotricha* Punter No. 7
- • 5f. cl. *orbicularis*
- • 8. *rupicola* cl. Cha Simba

Seemannia (Gloxinia) (D)
- *gymnostoma* (LM)
- *nematanthodes*
- *sylvatica*

Sinningia (D)
- *aggregata* (M)
- *aghensis* (T)
- *aghensis* AC2356
- *allagophylla* (MT)
- *allagophylla* GRF9922
- *allagophylla* GRF9929
- *allagophylla* GRF9968
- *allagophylla* (yellow)
- • *amambayensis* (L)
- • *araneosa* (F,L)
- *brasiliensis* (M)
- *brasiliensis* 'Verde'
- *brasiliensis* AC1314
- *bulbosa* (T)
- *calcaria* MP891 (F,L)
- *canescens* (D,LM)
- *carangolensis* (M)
- *cardinalis* (F,LM)
- *cardinalis* (compact) (F,LM)
- *cardinalis* (dark calyx) (LM)
- • *cardinalis* (orange)
- *cardinalis* peloric mix
- *cardinalis* (pink)
- *cardinalis* 'Innocent'
- • *cardinalis* 'Skydiver' (LM)
- *cochlearis*
- *conspicua* (F,L)
- *conspicua* GRF 9942
- *cooperi* (LM)
- *cooperi* AC1522 (M)
- *curtiflora* (T)
- *curtiflora* GRF9927
- *defoliata*
- *douglasii* GRF91188 (LM)
- *douglasii* GRF9936 (LM)
- *elatior* AC1409 (M)
- *elatior* GRF9963
- *eumorpha* /Saltao (L)
- *eumorpha* (lavender) (F,L)
- *eumorpha* (pink)
- *eumorpha* (white)
- *gigantifolia*
- *glazioviana* (L)
- • *guttata* (LM)
- *harleyi* MP 482
- *hatschbachii* (L)
- *hatschbachii* 'Iporanga' (D,LM)
- *iarae* (F,L)
- • *incarnata* (S,MT)
- *insularis* (LM)
- *leopoldii* (F,L)
- *leucotricha* (F,L)
- • *leucotricha (pink)*
- *leucotricha* cv. 'Max Dekking' (M)
- *leucotricha* "English"
- *lineata* (LM)

lineata GRF9920 (LM)
lineata (highly spotted)
macrophylla
macropoda (M)
macrostachya (LM)
magnifica GRF91121 (pink) (LM)
magnifica GRF91134 (red)
- *mauroana* (D,M)

micans MP891 (LM)
nivalis AC1460 (L)
nordestina
piresiana (L)
polyantha (formerly sp. "Waechter") (L,M)
- *pusilla* (F,P)
- *pusilla* (Itaoca) (F,P)
- *pusilla* 'White Sprite' (F,P)

reitzii (M)
reitzii 'New Zealand'
sceptrum (T)
sceptrum AC2406 (T)
sellovii (MT)
sellovii GRF9919
sellovii 'Bolivia' USBRG96-003
- *sellovii* 'Purple Rain'
- *speciosa* 'Cabo Frio' (F,L)

speciosa 'Carangola'
speciosa 'Domingos Martins'
speciosa 'Regina'
speciosa 'Sao Conrado'
- *speciosa* AC1503

speciosa AC1652
sulcata (LM)
tubiflora (S,MT)
tuberosa
warmingii (T)
warmingii GRF9921
sp. aff. *aggregata* (yellow) (M)
sp. aff. *aggregata* / Ilhabella MP631
- sp. aff. *reitzii* 'Black Hill' (M)

sp. aff. *reitzii* GRF9914 (magenta)
- sp. aff. *warmingii* 'Esmeril' (L)
- sp. "Florianopolis" (L,M)
- sp. "Gertiana"
- sp. "Globulosa"
- sp. "Ibitioca" (LM)

sp. "Rio das Pedras" MP1094 (F,P)
- sp. "Rio das Pedras" (dark) (F,P)

sp. "Rio das Pedras" (light) (F,P)
sp. "Santa Teresa" (D,P,F)
mixed species

Smithiantha (D,F,M)
- *canarina* GRF9105
- *laui*

multiflora
- *multiflora* GRF9121
- *multiflora* GRF9122
- *zebrina* GRF9104

Streptocarpus
buchananii (B)
candidus (F,R)
compressus
confusus (U)
- *confusus* ssp. *confusus* /Swaziland

cooperi (U)
cyanandrus (F,P)
- *cyaneus* (blue) (R)
- *cyaneus* (blue/long corolla)
- *cyaneus* (lilac)

daviesii (F,U)
denticulatus (U)
- *dunnii* (U)

eylesii (U)
fanniniae (R)
fasciatus (R)
fasciatus /Krokodilpoort, E. Transvaal (R)
floribundus (R)
formosus (R)
formosus /E. Cape, Transkei
galpinii
gardenii (F,L)
glandulosissimus
goetzei (U)
grandis (U)
grandis (blue form)
grandis ssp. *grandis*
haygarthii (F,U)
- *haygarthii* JT04-03D/Transkei Coast (F,U)

haygarthii JT04-051/Inchanga (U)
haygarthii /Mkambati, Transkei (U)
holstii (B,L)
johannis (F,R)
johannis /Komga, E. Cape
johannis /Weza, S. Natal (R)
sp. aff. *johannis* (F,R)
kentaniensis
- *kentaniensis* (N. Kei River)

kirkii (F,L)
- *kunhardtii*
- *lilliputana*
- *meyeri* /SE Transvaal (R)

meyeri /NE Cape Province
modestus (R)
- *modestus* /Magwa Falls, Transkei (R)

molweniensis
muscosus (L)
nobilis (M)
pallidiflorus (F,LM)
parviflorus (R)
parviflorus (mauve)
- *parviflorus* (white) (R)

parviflorus (white/mauve)
- *parviflorus* ssp. *parviflorus* /Limpopo Province

pentherianus (F,L)
polyanthus subsp. *comptonii*

- *polyanthus* subsp. *dracomontanus*
- *polyanthus* subsp. *polyanthus*
- *polyanthus* subsp. *polyanthus* /lg fl
- *polyanthus* subsp. *polyanthus* /Valley of 1000 Hills, Natal
- *porphyrostachys* (U)
- *primulifolius* (F,R)
- *primulifolius* /Valley of 1000 Hills
- *prolixus* (F,U)
- *pumilus* (F,P)
- • *pusillus* JT04-02C (P)
- *rexii* (white)
- *rexii* (pale blue/long corolla)
- *rexii* (white/blue mix)
- *rimicola* (F,P)
- *roseoalbus* (F,R)
- *saundersii* (U)
- *saxorum* (B)
- sp. nov./ Shiyalongubo Dam
- *thompsonii* (B,L)
- *trabeculatus* (U)
- • *vandeleurii* (U)
- *variabilis* (F,R)
- *wendlandii* (U)
- *wilmsii* (U)
- *wilmsii* /Long Tom Pass (U)
- Mixed species

Titanotrichum
- *oldhamii* (propagules)

Tremacron
- • *aurantiacum* (R)

Trichantha (see *Columnea*)

Vanhouttea (S,T)
- • *brueggeri*
- *lanata*
- • *pendula*

Mixed alpine gesneriads

Mixed gesneriad species

• Limited quantities available. Packet may contain small amount of seed

Seed Fund Key

(A)	Alpine or cool greenhouse	(LM)	Low to medium height
(B)	Suitable for hanging basket	(M)	Medium height; 1 to 2 feet
(D)	Has dormant period, forming tubers or rhizomes	(MT)	Medium to tall
(F)	Blooms readily in fluorescent light	(P)	Petite or miniature; under 6"
(G)	Recommended for greenhouses; requires space	(R)	Rosette in form
		(S)	Requires sun to bloom
		(T)	Tall plants; generally over 3 feet
(H)	Requires humidity and warmth	(U)	Unifoliate or single leaf
(L)	Low growing; not more than 12"	(V)	Leaves may be variegated

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Coming Events

September 11 – California – The San Francisco Gesneriad Society judged show and sale at the San Francisco County Fair Building, Golden Gate Park entrance 9th Ave. and Lincoln Way, San Francisco. Saturday: 10-4 sales; show open after judging 11?-4. Contact David Waugh <dgwah@sbcglobal.net>.

September 11 – Florida – *Gesneriad Celebration* presented by the Tampa Bay Gesneriad Society at USF Botanical Gardens Conservatory and Plant Shop, Pine Ave. on USF Campus (4202 E. Fowler Ave.), Tampa. Display and sale of gesneriads Saturday 9-3. Free admission and parking. Contact <4jam@tampabay.rr.com>.

September 18-19 – California – Delta Gesneriad & AV Society annual judged show and sale at the Sacramento Garden & Arts Cener, 3330 McKinely Blvd., Sacramento. Saturday: 1-4; Sunday 11-3. Free admission; free parking. Contact <www.sacviolets.org>.

September 25-26 – Massachusetts – Annual combined plant societies judged show and sale including the New England Gesneriad Society and the Buxton Branch of the American Begonia Society at Tower Hill Botanic Garden, 11 French Dr., Boylston. Saturday: 10-5; Sunday 10-4. Admission $10 adults; $7 seniors; $5 youths (6-18). Contact <stuarthammer@charter.net>.

September 25-26 – Missouri – Gateway West Gesneriad Society annual show and sale "Gesneriads Across the U.S.A." at the Missouri Botanical Garden, 4344 Shaw Boulevard, St. Louis. Saturday and Sunday 9-5. Contact <carol81843@yahoo.com>.

October 1-2 – Missouri – Heart of America Gesneriad Society annual judged show and sale at Loose Park Garden Center Building, 5200 Pennsylvania Ave. (entrance at 52nd and Wornall Rd), Kansas City. Friday sales only 12-4; Saturday show and sale 9-4. Contact <sagrose@aol.com>.

October 3 – New Jersey – Frelinghuysen Arboretum Gesneriad Society exhibit and sale at the Frelinghuysen Arboretum, Morristown. Sunday 11:00-3:30. Free admission and parking; handicapped accessible. Contact <kdc05@ptd.net> 973-579-7914.

October 9-10 – Florida – Suncoast and Tampa Bay Chapters of The Gesneriad Society judged show "Gesneriads Around the World" and sale at the Marie Selby Botanical Gardens, Sarasota. Saturday 1-5; Sunday 11-3. Contact <4jam@tampabay.rr.com>.

October 9-10 – Tennessee – Tennessee Gesneriad Society annual show and sale at Cheekwood Botanic Hall, 1200 Forrest Park Dr., Nashville. Saturday 9:30-4:30; Sunday 11:00-4:30. Contact <Julie.mavity@gmail.com>.

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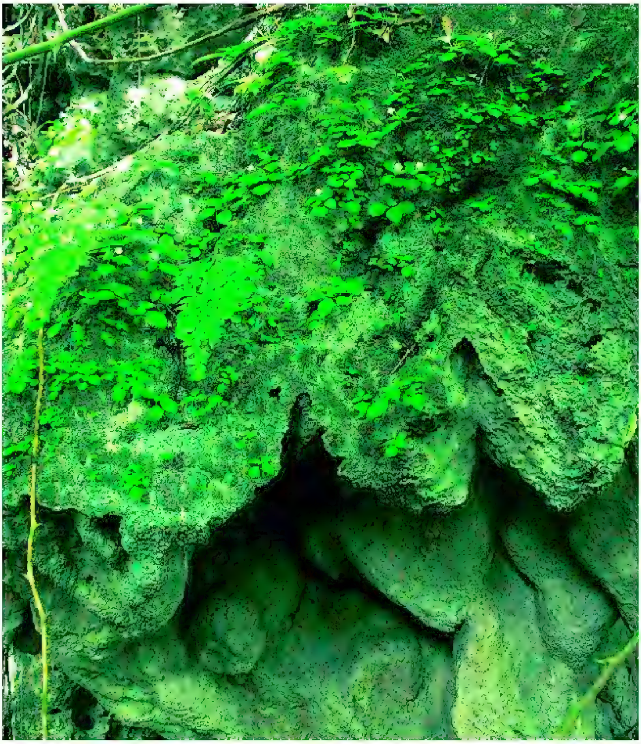
A New Genus from Brazil: *Chautemsia calcicola*

Alain Chautems <alain.chautems@ville-ge.ch>
Andréa Onofre de Araújo <aonofrearaujo@yahoo.com.br>
Mauro Peixoto <brazilplants@gmail.com>

Discovery and publication of the plant (by Alain Chautems, Geneva, Switzerland)

Back in 2003 as part of my routine work of identifying Brazilian Gesneriaceae, I received some herbarium sheets from the main herbarium in Belo Horizonte, Minas Gerais. Among them were two sheets of collections made in the early months of that year around the small towns of Arcos and Pains (about 200 km west of Belo Horizonte, not very far from the Canastra Mountains). On the herbarium sheet labels, the area was described as limestone outcrop. The flowers and the mature fruits were described as being green. In fact, no flowers were visible on these sheets, and I could only recognize that the ovaries were inferior on structures looking like immature fruits and that the roots showed some little scaly rhizomes. This led me to identify the material as some member of the tribe Gloxinieae, but I was unable to recognize a particular species known to occur in Brazil. I quickly mentioned that to the colleagues who had sent the material and asked for further details urging them to look for flowering specimens. In June 2004 I was happy to receive some pictures taken at the original site in December 2003 when the plant was again collected. The flowers were tubular, white, and shaped more-or-less like some species of *Diastema*. As this genus had never been cited for Brazil, my curiosity started to grow.

I shared the exciting information with Andréa Onofre de Araújo who had started the revision of the Brazilian *Gloxinia* in 2003 for her Ph.D. at the University of São Paulo. Her main adviser, Prof. Vinicius C. Souza, and I (as a co-adviser) had defined that this group should be investigated and revised. We soon made plans for a joint field trip, and after quite a bit of paper work obtained the requested authorizations that allowed us to explore the central part of Brazil in January 2005. The first stop on this ca. 8000 km expedition was planned to examine the *Gloxinia* sp. "Arcos" as we had provisionally labeled this new species. Contacts had been made with Pablo Hendrigo Alves de Melo, a young biologist who had discovered and made the first collections of it. He is native to the region of Arcos and Pains and had always been interested in wandering through some remnants of forests surrounding these little towns. These forests are quite unusual in that they vary from lush and dense during the wettest season, between November and March, to barren and dry during the driest months, between June and August, when many trees and shrubs have shed their leaves and the substrate, which is mostly composed of limestone outcrops, appears. The landscape is totally transformed because little humidity can be retained in the thin and porous substrate. This type of forest occupies an area in western Minas Gerais and part of central Brazil that lies between the Atlantic rain forest and the Cerrado with savanna vegetation. The vegetation is composed of an assemblage of plants adapted to dry or humid conditions as observed by Pablo who did detailed investigations in the framework of his master's thesis concluded



Chautemsia calcicola growing on limestone rock above a small cave (photo by Pablo Hendrigo)

in 2008 under the title "*Flora vascular relacionada aos afloramentos de rocha carbonática no interior do Brasil.*"

Under Pablo's guidance, a population of this unidentified "Gloxinia" was quickly spotted and observed. Tubular white corollas with yellow throats nicely contrasted with the light green leaves. Plants were scattered among some very tiny mosses on bare limestone above a small cave that was part of a steep slope within a patch of forest. Some water was dripping from above, keeping the place wet. Andréa and I got busy recording all the possible characteristics, taking pictures, collecting samples for herbarium records, fertile parts for spirit collections, leaves to be dried in silica-gel for future DNA analyses, and rhizomes or tiny plants for cultivation. Mature fruits were not yet formed, and Pablo agreed to revisit the area some weeks later. He subsequently sent pictures and pickled samples that reveal a very similar structure to the horizontally held and split hypanthium found in *Gloxinella lindeniana*. Pablo later discovered a few other populations in the area around Arcos and Pains. Despite his much broader exploration of other fragments of forest on limestone outcrops, he never found the plant again. This indicates that its distribution is restricted to an area of less than 5000 square km, deserving an "Endangered" conservation status based on the international criteria adopted by the IUCN (International Union for the Conservation of Nature). Although most elements were then available for a description, assigning the plant to a particular genus was still problematic.

Andréa came to Europe during the summer of 2005 and spent some weeks in the molecular lab at the "Conservatoire et Jardin botaniques de la Ville de Genève." With the help and experience of Dr. Mathieu Perret (who worked with me to reveal the molecular phylogeny of the genus *Sinningia*), she included this *Gloxinia* sp. "Arcos" in her phylogenetic study. As the first results were obtained, important new information came from my colleague Eric Roalson and his team who had started to investigate the whole tribe Gloxinieae. Instead of a single genus *Gloxinia*, as redefined in the 1980's by Hans Wiehler, they proposed splitting the genus into seven entities, i.e., a segregated new tribe called Sphaerorrhizae composed of the single genus *Sphaerorrhiza* and the genera *Gloxinia* (reduced to 3 species), *Gloxinella, Gloxiniopsis, Mandirola, Nomopyle*, and *Seemannia.*

Using five regions of DNA for all the species known in Brazil, Andréa's results proved to agree with the proposed revision, but the new species did not fit into any of the above genera. Some affinities with the central-Brazilian genus *Mandirola* were revealed, but combined analysis with the Roalson's data indicated another possible relationship with *Gloxiniopsis.* This led to the conclusion that it was wiser to place the new species in its own genus, which Andréa did in her Ph.D. dissertation concluded in 2007, suggesting the use of the name *Chautemsia.* A careful comparison of all possible morphological features observed in the above genera was also added in order to better characterize this puzzling new species. The genus *Diastema* was also included in this comparison as its flowers are quite similar in shape, size, and color (for most of the species), besides the five finger-like nectary glands arranged around the ovary and the same kind of dehiscent fleshy capsule. Nevertheless, other characters, like unspotted lobes of the white corollas, stomatomorphic stigma, and flowers borne at the leaf axils distinguish *Chautemsia* from *Diastema* (without mentioning that the nearest population of the latter genus occurs at some 3,000 km / 2,000 miles away in Peru and the nearby Acre state in Brazil.) Based on the molecular data, neither of the two lineages that appeared for *Diastema* was found to be related to *Chautemsia.* Efforts to strengthen the molecular data were pursued by Mathieu and after extensive discussion, it was decided to publish the results in a paper to be written by Andréa, her thesis main advisor Vinicius C. Souza, and Mathieu Perret. The manuscript was submitted to the journal *Taxon*, in which Roalson, et al. previously published the phylogenetic data in preparation for the complete reorganization of the Gloxinieae published in *Selbyana.* The paper was accepted and published last February. It only takes a couple of decades of exploration in the field, lab work and collaboration of nice colleagues, students, and friends to receive the honor of being remembered in the world of botany!

Etymology (by Andréa Onofre de Araújo, São Paulo, Brazil)

The name of this new genus was chosen to acknowledge and reward the important work of Alain Chautems with the family Gesneriaceae, especially in Brazil. After more than 20 years of work contributing to the study of this vast flora, he deserves this honor in recognition of his achievements and dedication. In addition, Alain shared his knowledge and data with several students interested in the taxonomy, floral biology, and ecology of Gesneriaceae. It is also fair to give him credit for identifying this plant as a

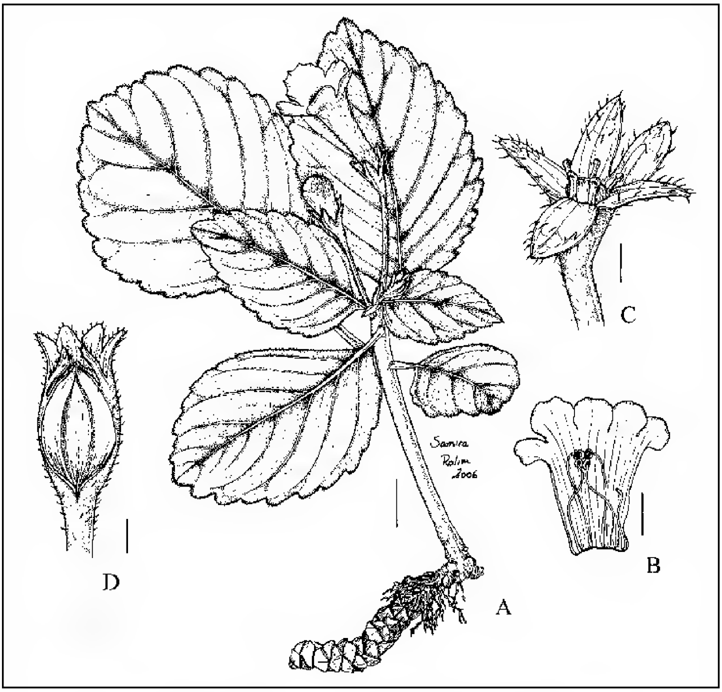


Illustration of *Chautemsia calcicola* by Samira Rolim
from thesis of Andréa Onofre de Araújo

new species, first collected in 2003, that otherwise would have stayed undetected among the still incompletely known Brazilian flora.

The specific epithet (*calcicola*) of this new species makes reference to the environment where this species is found: limestone outcrops, from Latin: *calcareous* = chalk. Because *Chautemsia calcicola* has several characters in common with species from several other genera, it was very difficult to select a unique diagnostic character to refer to in selecting an epithet for this new taxon. Moreover, the habitat where this plant occurs is very characteristic and describes an important feature for the recognition of this new taxon. This species has never been found in an environment that was not limestone outcrops — not by Pablo Hendrigo (with all the extensive fieldwork in the region) nor by us.

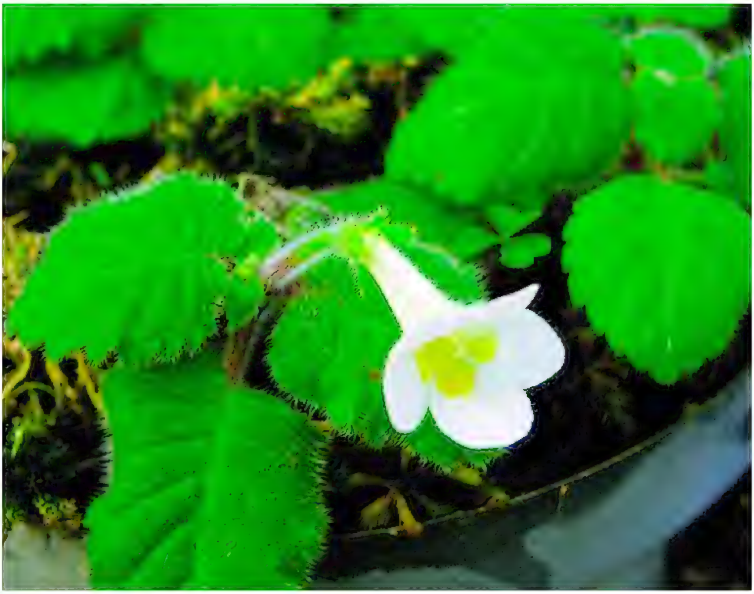
Cultivation (by Mauro Peixoto, Mogi das Cruzes, SP, Brazil)

This little gem was given to me in April 2007 by Pablo Hendrigo, the man who discovered it. He also gave me some pictures of it growing in nature, so I could at least try to duplicate the growing conditions in my greenhouse.

As the plants grow on rocks with almost no soil, the drainage should be perfect or the rhizomes would rot, especially in the dormant season. That would be easy to achieve by placing a layer of pebbles on the bottom of the pot, but the real challenge would be which type of mix to use because it comes from limestone rock outcrops. Here in Brazil, I don't have access to perlite or peatmoss, and I don't like to use vermiculite because it tends to hold too much water in my climate where the humidity is almost 100% nine months a year. The remaining three months it is around 70%.

I divided the plants I received from Pablo (they were already past the peak of their growing season and were preparing for dormancy) into three lots. I planted one in my usual mix (which is one part commercial mix, one part sand, and one part shredded leaves from my backyard, plus a pinch of dolomite lime); the second lot was planted in the soil that Pablo had collected near the plants and brought to me; and the last two plants were planted in pure living sphagnum moss. The plants sat there for a few weeks and finally entered into dormancy. By the end of November they started growing again and, to my surprise, the most vigorous plants were the ones planted in sphagnum moss!

The plants come up regularly every year but this season, due to a very wet January and February when it rained 47 days in a row, they got mildew and I could not harvest any seed.



Chautemsia calcicola growing in living sphagnum moss
(grown and photographed by Mauro Peixoto)

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Botanical Review No. 36

Bob Stewart <aeschynanthus@verizon.net>
Stow, Massachusetts, USA

- A new species of *Agalmyla* (Gesneriaceae) from Sulawesi. **Middleton, D.J. & Scott, M. *Edinburgh Journal of Botany* 65: 49-52. 2008**.

The authors describe and illustrate the new species *Agalmyla hilliardiae*. It is distinguished from other members of this genus in Indonesia by clusters of bright yellow flowers at the ends of long peduncles (20-31cm, much longer than the leaves).

It was, and hopefully still is, in cultivation at the Royal Botanic Garden, Edinburgh. We can only hope that eventually it will escape into open cultivation.

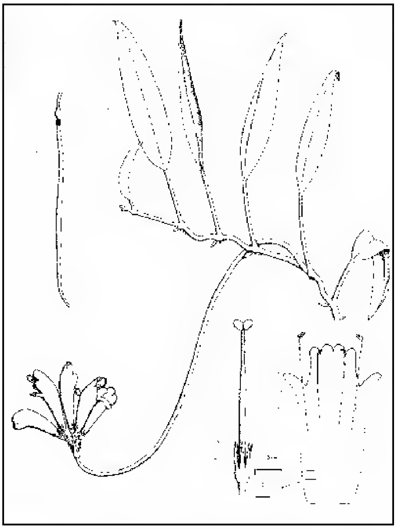


Illustration of *Agalmyla hilliardiae* from *Edinburgh Journal of Botany* 65: 49-52, 2008 (reprinted with permission)

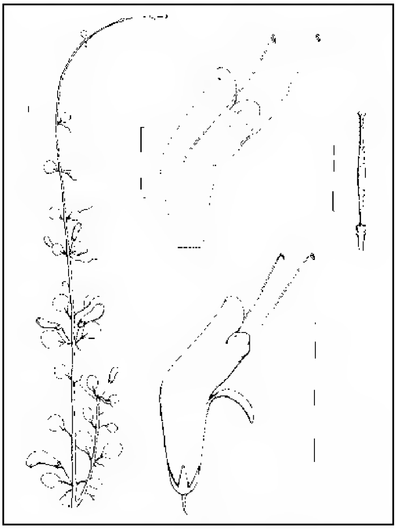


Illustration of *Aeschynanthus minutifolius* from *Edinburgh Journal of Botany* 64: 363-429, 2007 (reprinted with permission)

- A revision of *Aeschynanthus* (Gesneriaceae) in Thailand. **Middleton, D.J. *Edinburgh Journal of Botany* 64: 363-429. 2007**.

This article is a thorough "going over" of the specified plants, with a view toward clarifying what species exist in Thailand, their correct names, and their descriptions. The author intends to continue with this genus in other geographic areas in future articles.

The author recognizes twenty species from Thailand, most of which are in cultivation.

He describes as new *Aeschynanthus minutifolius*, a plant with small leaves and small flowers known only from one collection.

He discusses three closely related species that are generally similar to *Aeschynanthus humilis* (which was grown for several years as *A. hildebrandii*). It seems that (at least regarding the species in Thailand) if the calyx lobes are free to the base and the lower lip of the corolla is strongly reflexed, then the plant is *A. andersonii*. Otherwise one needs to look for the presence (*A. humilis*) or absence (*A. persimilis*) of numerous stiff hairs on the inside of the corolla tube near the base. If you are growing one of these plants it might be worth a careful examination of the flowers; given the relative obscurity of the differentiating characteristics it is not impossible that more than one of these species is in cultivation without our realizing it.

- Genome size variation and polyploidy in the resurrection plant genus *Ramonda*: cytogeography of living fossils. **Siljak-Yakolev, S., Stevanovic, V., Tomasevic, M., Brown, S.C., Stevanovic, B.** ***Environmental and Experimental Botany*** **62: 101-112. 2008**.

This paper focuses on the genetic structure of the genus *Ramonda*. The genus consists of three species that are remnants of what was probably a widely distributed group prior to the ice age. The species now exist in "refuge" habitats in the mountains of Europe. *Ramonda myconi* is found in gorges and humid valleys in the Pyrenees. *R. serbica* and *R. nathaliae* (along with *Haberlea rhodopensis* and *Jancaea heldreichii*) are found in the Balkan mountain areas of SE Europe.

They are restricted to northern (i.e., shaded) rocky slopes of canyons and gorges in foothills. (This is consistent with my garden experience, where the plants must have some shade from the hot summer sun to survive.)

The altitude range for the Balkan species is usually between 300-600m though they can be found up to 1000m or more. *Ramonda myconi* is often found around 1000m, though sometimes lower. They all prefer limestone rocks, though *R. nathaliae* also occasionally occurs on serpentine, schist, and granite (which are acidic rocks). They generally grow in cracks in steeply sloped surfaces.

All of these species are "resurrection plants"; they are capable of recovering from considerable desiccation.

The authors find that *Ramonda myconi* and *R. nathaliae* are diploid species with 2n=48, while *R. serbica* is a hexaploid species with 2n=144 (individual plants with even higher numbers were found). They suggest that earlier lower chromosome counts for the latter species may have been from hybrid plants. There is apparently considerable hybridization between *R. serbica* and *R. nathaliae* in the regions where they overlap, resulting in plants with 2n=96. The hybrids had the appearance of *R. serbica*, probably because it contributed the majority of the DNA. Back-crosses to the species also occurred. (They also mention that Halda has produced several artificial hybrids among the five European gesneriad species.)

In their field studies they found that the diploid species were smaller plants and were less tolerant of low humidity than the hexaploid species and natural hybrids. Future work is needed to determine the exact mechanism of this effect.

- Pollination Ecology and Breeding Systems in Five *Gesneria* Species from Puerto Rico. **Martén-Rodríguez, S. and Fenster, C.B.** ***Annals of Botany*** **102: 23-30. 2008**.

The authors documented floral visitors, flower longevity, and nectar production. The species *Gesneria pedunculosa, G. citrina*, and *G. cuneifolia* were studied in the forest surrounding the Arecibo Observatory in north central Puerto Rico. This is a region of limestone hills at about 300m altitude that also contain cave systems. The caves harbor bat populations, including at least one nectar-feeding species. The species *G. viridiflora* subsp. *sintenisii* and *G. reticulata* were studied in El Yunque National Forest.

Hybridizers might be interested in one of the study techniques that they used. They checked stigma receptivity by adding a drop of hydrogen peroxide and checking for bubble formation. (See the book "Techniques for pollination biologists" by Kearns and Inouye, University Press of Colorado.) The technique ruins that flower, but using it on a few flowers allows you to find out how long it is from flower opening until the stigma is ready to determine the optimal pollinating time.

Hispaniolian Emerald hummingbird visiting *Rhytidophyllum vernicosum* (photo by Silvana Martén-Rodríguez)

The authors found that *Gesneria reticulata* produces almost no nectar and relies almost exclusively on self-pollination, even though the flower shape and color are typical for bird-pollinated flowers. Observation revealed that hummingbirds rarely visit the flowers of this species. Apparently the birds learn that they get no reward and can distinguish this species from the others. If you want to use this species as seed parent for a hybrid you will need extra care, especially since the anthers open before dawn on the first day the flower opens.

In *Gesneria citrina*, nectar production occurs mostly between 3 a.m. and 6 a.m. In *G. cuneifolia*, nectar production occurs mostly between 3 a.m. and 6 a.m. but tapers off during the afternoon. These species have (yellow and red, respectively) tubular flowers of typical bird-pollinated form. The stigma is receptive when the flower opens, while the anthers do not open until before dawn on the second day.

These two species are exclusively bird-pollinated. Visit frequency was about one visit per flower per 2-3 days. Both species were visited by the Puerto Rican Emerald hummingbird. *Gesneria citrina* was also visited by the Green Mango hummingbird. I wonder whether the restricted nectar production timing of the species somehow ties into the schedule of that bird species. Bananaquits also visit these flowers occasionally to steal nectar by poking a hole at the base of the flower. These two tubular-flowered species are also capable of self-pollinating even if they are not visited.

The white bell-shaped flowers of *Gesneria pedunculosa* produce very large quantities of nectar, primarily at night. The anthers open after dark of the first day; the stigma elongates on the second day. Nectar-feeding bats are the primary pollinators. Birds and insects sometimes visit, but are not effective pollinators.

The almost bell-shaped green flowers of *Gesneria viridiflora* subsp. *sintenisii* also produce very large quantities of nectar, primarily at night. The stigma is receptive when the flower opens, while the anthers open after dark of the first day. Nectar-feeding bats, which are the primary pollinators, typically visit several times per flower per night. Pollination by hummingbirds is possible and may suffice when bats are not present. Other birds and insects sometimes visit, but are not effective pollinators.

Self-pollination rates are low for the bat-pollinated flowers. The authors report that during one observation year the bats were completely absent, so I find it curious that the plants have not resorted to stronger self-pollination mechanisms to deal with this problem.

- Investigation of the biosynthesis of 3-deoxyanthocyanins in *Sinningia cardinalis*. **Winefield, C.S. et al. *Physiologia Plantarum* 124: 419-430. 2005**.

Anthocyanin pigments are a large family of chemicals that provide most red and blue pigments for plant tissues. These chemicals are in turn part of an even larger and more general group called flavonoids, which have achieved a certain degree of notoriety recently as anti-oxidants in foods. The ability to produce these chemicals is part of the basic genetic equipment of plants from at least mosses on up.

The particular chemical mentioned in the title is responsible for the red-orange flower color of many New World gesneriads. It is also present in less obvious amounts in corn flower silk.

This paper examines the genes, enzymes and chemicals involved in the creation of this pigment. As with other plant chemicals, the production process is complex, consists of many small steps involving several enzymes whose production is controlled by several genes, and steps in the process are in turn subject to regulation and control by other chemical signals.

The paper mentions that if you look on the inside bottom of the *Sinningia cardinalis* flower you will find indistinct darker stripes. These are produced by a different anthocyanin pigment which they also identify.

They also mention that if you look at the flower's hairs under a microscope you can see that they contain granular pigmented bodies within the hair cells. The pigment is not spread throughout the cell body.

- Single nucleotide polymorphisms of Gcyc1 (Cycloidea) in *Conandron ramondioides* (Gesneriaceae) from southeast China. **Xiao, L.-H. & Wang, Y.-Z. *Plant Systematics and Evolution* 269: 145-157. 2007**.

"Single nucleotide polymorphisms" are the small variations in the sequence of a particular gene among members of a population. Such small differences are quite common, and most have little effect.

"Cycloidea" is a gene that is involved in top-bottom asymmetry of flowers, and as such is probably important in most gesneriads. It is apparently not important in this particular species because it has the unusual feature (for a gesneriad) of having symmetrical flowers.

The authors found 18 different forms of this gene in the eleven different populations that they sampled. These variations had no visible effect on flower size or shape, which I assume is the expected result.

The authors are interested in using the data to track genetic diversity and gene flow within and between the geographically separated populations of this species. This is particularly important because habitat destruction (and potentially other factors) has caused the populations to become smaller and more isolated. Each population may be only a single clump of a few or sometimes 200 or so plants, of a few square meters in size.

Of interest to cultivators are their habitat observations. The plant is found at low to medium elevation in southern Japan, Taiwan, and southeastern mainland China. The Chinese populations that they sampled were almost all between 700m and 900m altitude.

The plant has a specific habitat along creeks on wet dripping granite cliffs. The wetter locations have more plants. The creeks run in shady mountain valleys under sub-tropical evergreen broadleaf forest. The plants are rooted in moss-covered rock cracks in shallow soil.

- Allelopathic effects of *Eupatorium adenophorum* on five species of the family Gesneriaceae. **Li, Y. et al.** ***Biodiversity Science*** **15: 486-491**.

Eupatorium adenophorum is a Mexican relative of the "Joe Pye Weed" that is familiar to North American gardeners. It has become a highly invasive weed in China and is moving into gesneriad territory in SW China. The authors tested extracts from the weed to determine whether these chemicals inhibited the growth of gesneriad seedlings. They found strong effects on seedlings of *Chirita spinulosa* and lesser effects on the other species in the test.

- Composição do óleo essencial de *Sinningia aggregata*. **Stefanello, M.E.A. et al.** ***Revista Brasileira de Farmacognosia*** **15(4): 331-333. 2005**.

The above-ground parts of *Sinningia aggregata* are covered by sticky aromatic hairs. The authors distilled essential oils from this species and analyzed the resulting mixture, identifying seventeen chemical components. The two major components are not unusual, being found in other unrelated plant species.

Reports by two other authors of the essential oils in two species of Scrophulariaceae (the most closely related family in many taxonomic schemes) show a completely different set of chemicals.

The authors point out that production of essential oils by plants is often associated with attracting pollinators. The flowers of this species look as though they would be pollinated by hummingbirds, which are not likely to be interested in fragrance. Why does the plant spend energy producing these compounds?

- The impact of pollination syndrome and habitat on gene flow: a comparative study of two *Streptocarpus* (Gesneriaceae) species. **Hughes, M., Möller, M., et al.** ***American Journal of Botany*** **94: 1688-1695. 2007**.

Gene flow between populations of a species is necessary to maintain species cohesion. In the absence of gene flow, each isolated population is free to evolve differently. Gene flow can occur by the transfer of pollen between populations or by the transfer of seeds. The authors use genetic methods to study the relative effectiveness of these two mechanisms in two very different species.

Streptocarpus primulifolius forms long-lived, multi-leaved plants with typical flowers for the genus. The flowers are pollinated by a species of nemestrinid fly. These are large flies that can uncurl a very long tongue which they insert into the flower tube to feed on nectar while hovering.

The plants live in patches of evergreen subtropical forest in coastal gorges, essentially just above sea level. They favor shaded, damp, south-facing slopes. These forest patches are leftovers from a previous warmer and wetter period. The climate is now drier and seasonal, and the forest patches are isolated by fire-dominated grasslands.

Streptocarpus dunnii is a monocarpic unifoliate species with tubular brick-red flowers. The flowers are pollinated by a species of nectar-feeding sunbird.

The plants live in an exposed rocky treeless grassland habitat at high altitude (about 2000m). They favor rock cracks or the bases of large boulders.

The fly pollinator of *Streptocarpus primulifolius* has a restricted range, and is unlikely to travel from one population to another. The sunbird pollinator of *S. dunnii* has a much larger range and is certainly capable of transferring pollen between populations.

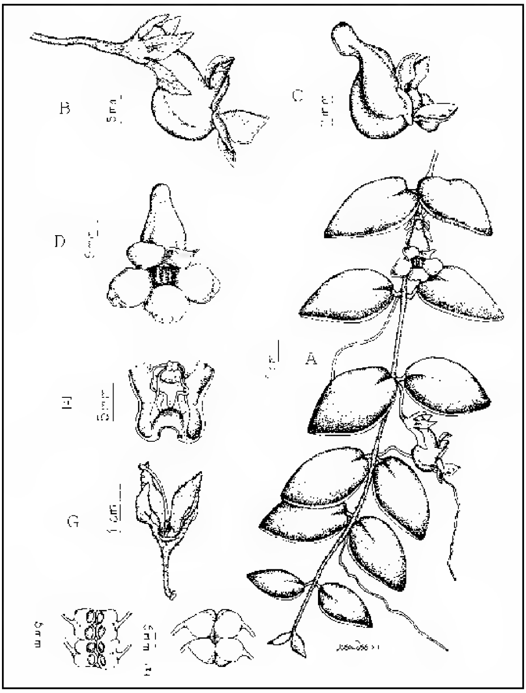
Both plant species have small seeds that might be dispersed by wind. Previous studies have suggested that wind dispersal is unlikely in sheltered forest habitat because the ground-level wind velocity is low. Wind dispersal in an open upland habitat is more feasible.

After their genetic analysis work, the authors find that seed flow between populations of *Streptocarpus primulifolius* is essentially non-existent, and pollen flow is low. Each population may represent a separate stable relict group. Populations from different areas can have significant differences in appearance. One was described as a separate species (*S. insignis*) in the 1971 Hilliard and Burtt book on *Streptocarpus*. A collector in a previously unvisited gorge might find a new form.

The ratio of gene flow via pollen versus seeds for *Streptocarpus dunnii* is 32:1. Pollen flow seems to be significantly higher in this species, and the populations are more uniform.

- *Codonanthe gibbosa* Rossini & Chautems (Gesneriaceae), a new species from the state of Espirito Santo, Brazil. **Rossini, J. & Chautems, A. *Candollea* 62: 215-220. 2007**.

The new species is a member of the group of *Codonanthe* species with small leaves and flowers and orange berries that occur in SE Brazil. It has extremely thin stems (0.6-1mm), leaves with no hairs except along the edges, a white flower with a strong bulge on the bottom, and no brown spots in the yellow throat.



Codonanthe gibbosa illustration from *Candollea* 62: 215-220, 2007 (© Conservatoire et Jardin Botaniques de la Ville de Genéve) (reprinted with permission)

- Botánica y screening fitoquimico de doce plantas usadas en medicina tradicional en el Departamento del Chocó, Colombia. **Pino-Benitez, N. *Revista Latinoamericana de Recursos Naturales* 2(1): 33-44. 2006**.

This paper reports on phytochemical screening of twelve plants used in traditional medicine. Eight of the plants screened were gesneriad species.

Alkaloids were not found in any of the gesneriads. Other potentially active chemicals such as flavonoids, quinines, and terpenes were found. There is considerable variation from one species to the next in the amounts of chemicals in each group.

The author cites several papers suggesting which groups of chemicals might be responsible for any reported disinfectant activity of these plants.

- Altered expression patterns of TCP and MYB genes relating to the floral development transition from initial zygomorphy to actinomorphy in *Bournea* (Gesneriaceae). **Zhou, X.-R., Wang, Y.-Z., et al.** ***New Phytologist*** **178: 532-543. 2008**.

It is generally believed that the original flowering plants had actinomorphic (radially symmetric) flowers. Zygomorphic flowers (bilateral symmetry) developed later, and many families, including gesneriads, are now basically of this form.

However, within the gesneriad family there are a few species with flowers that are more-or-less radially symmetric. Understanding the genetic mechanisms behind this seeming "reversion" is an interesting problem.

There are also occasional peloric mutant flowers on otherwise normal plants. Understanding this mechanism would also be interesting.

This paper describes a detailed study of the genetic mechanism behind flower development in one interesting species. *Bournea leiophylla* is a gesneriad that has flowers that appear very nearly radially symmetric.

The authors found that this species has two versions of a CYCLOIDEA-type gene that identifies the top of the flower, though only one of the versions seems to have any role in flower development. The species also has two versions of a DIVARICATA-type gene that identifies the bottom of the flower; the two versions seem to function identically. Very early in the development of the flower, it starts off as though it will be zygomorphic, and the authors found normal activity of the CYCLOIDEA-type gene in the upper parts of the flower. However, at a later stage in flower development the activity of the CYCLOIDEA-type genes was sharply reduced. The activity of the DIVARICATA-type genes followed a more complex pattern. By the time the flower opens it is almost symmetric, with all of the parts being "bottom-like".

Thus the seeming "reversion to a primitive form" is not due to a loss of a gene, but rather to a change in the timing of the activity of the gene.

The authors also mention that the peloric cultivars of *Sinningia speciosa* carry a specific mutation to the one copy of a CYCLOIDEA-type gene that is present in this genus, and that this may be the cause of the modified flower.

- Genetic diversity of the endangered Chinese endemic herb *Primulina tabacum* revealed by amplified fragment length polymorphism (AFLP). **Ni, X. et al.** ***Genetica*** **127: 177-183. 2006**.

The authors use modern genetic analysis techniques to determine the degree of genetic diversity remaining in the wild populations of this species. They find that the diversity is surprisingly large considering the species' narrow distribution.

This is important because the species has a very restricted range and is considered to be critically endangered. It is found only near the border between Guangdong and Hunan provinces in SE China. It is restricted to limestone habitats.

In fact it is even more restricted than that because it apparently only grows within 5-20m of limestone cave mouths below 300m altitude! The authors state that it relies on high CO_2 concentration, high humidity, and low light.

- The ecological and biological characteristics of an endangered plant, *Primulina tabacum* Hance. **Ren, H. et al.** ***Acta Ecologica Sinica*** **25(5): 1012-1017. 2003**.

This paper provides details of the conditions under which *Primulina tabacum* grows in nature.

The plant grows at and inside the large entrance openings of caves in limestone rock below 300m elevation. Their data show that at the entrance of such a cave the light level will be about 25% of the unshaded level, the temperature will be a relatively even 20°C (varying only a couple degrees, and about 5°C below the exterior), the humidity will be 97% (slightly above the outside level), and the CO_2 level will be almost twice the usual outdoor level. The plant can also grow somewhat farther inside the entrance to a maximum of about 25m, where the light level will be less than 2% of outdoor level and the CO_2 level will be even higher than at the entrance, but the plants will be smaller and will flower less. However, other plants fail even more rapidly, so the maximum density of *Primulina tabacum* is about 15m inside the entrance, where it has a few ferns for company.

The ground water available to the plant will be highly alkaline. The concentration of bicarbonate ion (which most plants are not fond of) is high. Calcium is available and magnesium is present; other nutrient ions are scarce. The soil layer is thin and poor, with less than 2% organic content, pH of 7.5, and low nutrient levels.

Perhaps this information will be useful to growers who want to try this unusual plant. The Chinese are treating this species as critically endangered, and a three-year program to conserve the plant at locations other than its natural habitat has not been successful.

Ed: See additional articles about Primulina on pages 28-30.

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The Genus *Primulina*

Laurence E. Skog & Jeanne Katzenstein

This genus has only one species – *Primulina tabacum* – which smells of tobacco, hence the name. It looks like a cluster-headed *Primula* with purple streaked flowers and coarse, hairy roundish leaves. After discovery in 1881 by the Rev. B.C. Henry in Tai-li, China, *Primulina* entered into limited cultivation in Europe. It has been in cultivation in the US since the early 1990s when LES brought seeds back from Beijing. Some of that seed was sown by the late Maryjane Evans, but only one seedling survived and grew on to flower. That plant was exhibited in 1990 at the AGGS Convention in Quebec City after which it was propagated and distributed to many Society growers. Well-grown specimens are now often exhibited at gesneriad shows. In the wild, this species is only known from a very limited area and may be considered endangered. (See the Botanical Review articles about *Primulina* on pages 26-27 in this issue.)

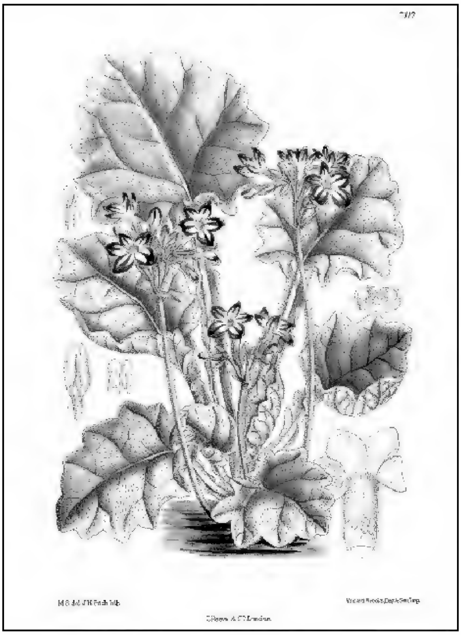
Here is a more complete picture of the genus.

Establishment of the Genus: *Primulina* Hance, J. Bot. 21: 169 (June 1883).

Etymology (history of the genus name): Named for the similarity to flowers of *Primula*, the garden primrose.

Synonym: *Primulina sinensis* J.D. Hooker.

Placement of the Genus: Family Gesneriaceae, subfamily Cyrtandroideae, Tribe Didymocarpeae.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Primulina tabacum
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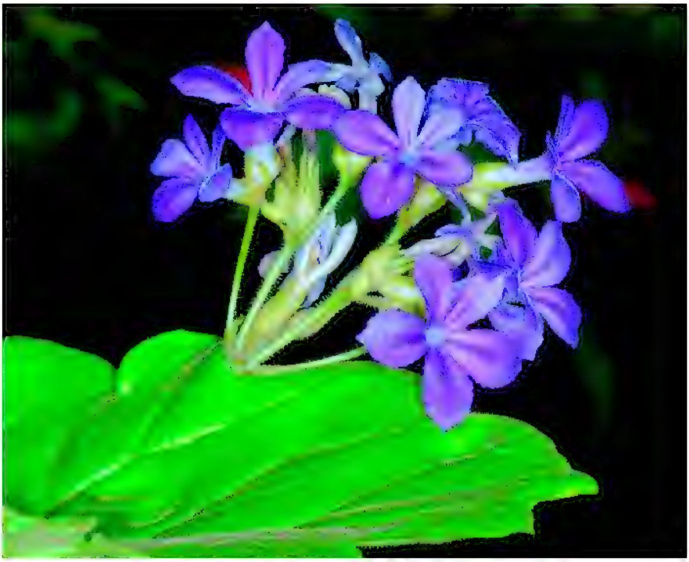
Bot. Mag. 116:
pl. 7117 (1883)



Primulina tabacum inflorescence and leaf
(photo by John L. Clark)

Geographical Distribution: Narrow distribution in Southern China (N Guangdong).

Habitat: On rocks and riverside cliffs in limestone areas, 100-300 m.

Habit: Perennial rosette herbs. Leaves with wavy-winged petioles, blades ovate-subrounded, lobed at margins, upper surface puberulous, lower surface puberulous and glandular hairy. Cymes with peduncle equalling or slightly shorter than leaves, umbellate, 3-7-flowered; bracteoles narrowly ovate. Sepals free, lanceolate. Corolla purple, salverform, lobes ovate-orbicular, rounded. Stamens 2; filaments attached above base of corolla tube, anthers converging; staminodes absent. Nectary with two squarish lobes. Ovary ovoid, style short, stigma split at apex. Capsule ellipsoid, splitting at the locules to base.

Notes: The sticky glands on the leaves give off a strong odor of tobacco, which lingers on the fingers after touching the plants.

Pollinators: Bees (?).

Chromosome Number: Unknown.

Number of Species: Type and only species – *Primulina tabacum* Hance.

Earliest Illustration: J.D. Hooker, *Primulina sinensis*. Native of China. Botanical Magazine 116: pl. 7117 (1890).

Common Name: "Rock tobacco".

Selected Reference: Wang et al. in Wu & Raven (eds.), Fl. China 18: 310-311 (1998).

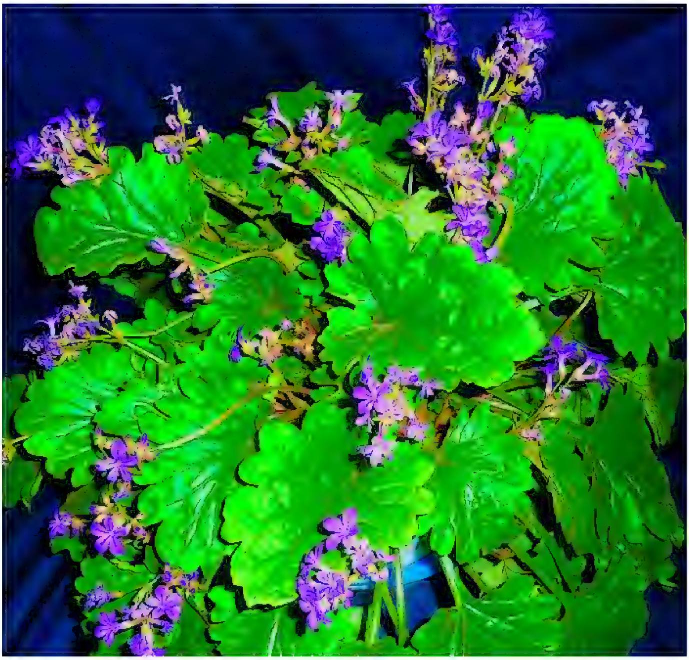
How I Grow *Primulina tabacum*

Nancy Kast <jnkast@aol.com>
San Antonio, Florida, USA

Primulina tabacum is a critically endangered perennial herb endemic to limestone areas of southern China. When its leaves are touched or crushed, they have the odor of tobacco. *Primulina tabacum* can make a great show specimen as it grows into a nice rounded shape with many beautiful star-shaped purple blossoms.

I enjoy having this unusual, easy-to-grow plant in my collection. It sits in the center of the top shelf of a light stand about 6 inches under four T12 fluorescent tubes. The lights are on about nine hours per day. My plant is wick-watered using filtered water with 1/4 tsp. per gallon of any fertilizer I have available, switching with each watering, but I use DynaGro the most. My soil mix consists of (using a 1 qt. can) 4 parts ProMix BX, 3.5 parts perlite, 2 parts vermiculite, 1 part Baccto, 1 cup charcoal, and 1 tablespoon lime. Sometimes I add more perlite and charcoal.

The plant rewards you with an explosion of bloom when it is repotted at regular intervals. The leaves tend to be a little sticky, so you need to watch the blossom stems to make sure they don't get stuck under the leaves. I started *Primulina tabacum* from a leaf. My plant is now about two years old and is planted in an eight-inch pot. It has grown to more than two feet in width and has been blooming continually for three months.



Primulina tabacum grown by Nancy Kast
(photo by Jeanne Katzenstein)

The Gesneriad Conservation Alliance and The Gesneriad Society Metacollection of Rare and Endangered Plants

Dr. John R. Clark, Director, Gesneriad Research Center
<johnrobertclark@gmail.com>, Sarasota, Florida, USA

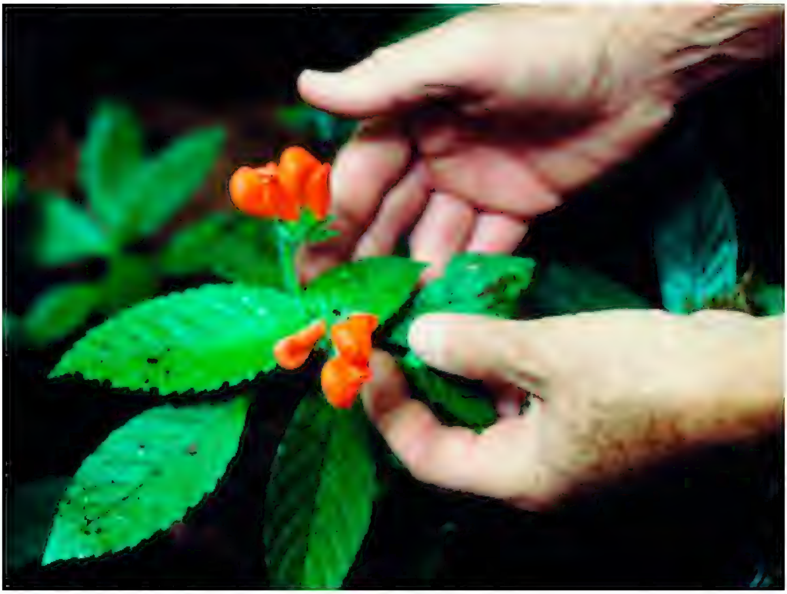
I have some bad news and some good news for gesneriad growers. The bad: Gesneriads are under threat of extinction. The good: There is something we can do about it. Read on to learn more about the threats facing gesneriads in the wild as well as in cultivation – and what we are doing as a Society to conserve and protect remaining species.

Threats to Gesneriads in the Wild

We are losing species globally at an alarming rate. With accelerating factors such as unchecked deforestation, the threat of invasive species, and looming global climate change, the prospects for many species in the wild are at best uncertain. Current estimates suggest that an average of 1.2% or approximately 15 million hectares of rainforest habitat is lost each year from deforestation alone. That's an area greater than the size of Costa Rica and Panama combined. Tropical deforestation is particularly devastating for species of gesneriads that depend on intact, undisturbed habitat to survive.

A recently clear-cut forest on the island of Vangunu, Solomon Islands (photo by J. R. Clark)

To illustrate how "real" this threat is, there are documented cases of gesneriads being lost. One example comes from the island of Oahu, Hawaii. *Cyrtandra waiolani* from the Ko'olau Mountains was last collected in 1943 along the North Halawa Stream by Harold St. John. Later efforts to locate this species by Warren L. Wagner and others were unsuccessful and the species is now presumed extinct, likely a victim of introduced feral pigs and invasive plants. Similarly, half a world away, a more recent example of a gesneriad's demise occurred in the Andean mountains of Ecuador. A then-undescribed species of *Gasteranthus* was collected by Calaway Dodson during a botanical excursion to a small area in El Centinela Forest. The species was locally rare and occupied an exceedingly small range that was not protected. It was last collected in the 1980s from the same area, not long before the entire region was deforested and converted to agriculture. No living material was ever introduced into cultivation, and the species is now feared to be extinct. Larry Skog and Lars Kvist have since described the new species from herbarium specimens and named it *Gasteranthus extinctus*, in recognition of its dubious fate.



One of the only known photographs of *Gasteranthus extinctus* alive in the wild (photo by C. Dodson)

Threats to Species in Cultivation

If *Cyrtandra waiolani* and *Gasteranthus extinctus* had been introduced into cultivation, live plants would be available for continued study and possible reintroductions. Cultivation alone, however, does not ensure a species will be protected. A popular misconception about cultivated plants is that once in cultivation a species is always in cultivation. Many species that were once widely grown have now declined in number and are at risk of being lost. Some of these species are inherently difficult to maintain long-term, contributing to their declining numbers. Others may have simply fallen out of favor among growers and have not been preserved. Whatever the case, bringing specimens into cultivation is a considerable undertaking and once in cultivation, these species provide additional diversity for the display, study, and conservation of gesneriads. Identifying species that soon may be lost among cultivated material and devising a way to manage these species is equally a part of any program designed to conserve gesneriads.

The Gesneriad Conservation Alliance – stemming the tide of gesneriad extinctions

While halting and reversing habitat destruction is perhaps the most critical factor in preserving remaining species, for some gesneriads such efforts may be too little too late. Off-site conservation of collected and grown specimens may be the only hope for many gesneriads that are threatened in the wild. Members of The Gesneriad Society are uniquely poised to facilitate this conservation effort. Society growers have the collective knowledge to propagate, grow, and maintain gesneriad specimens in cultivation. In fact, Society members are the *world experts* in propagating some of the most difficult-to-grow gesneriad species. All that is needed for conservation is a strategy to organize and manage this collective expertise.

The Gesneriad Conservation Alliance, a partnership between The Gesneriad Society, Inc. and the Gesneriad Research Center at Selby Gardens, is tasked with developing and implementing off-site conservation strategies to preserve endangered, poorly known, or otherwise rare gesneriads. The Gesneriad Research Center is responsible for devising scientifically based strategies for managing these collections and for informing conservation growers of the tasks and responsibilities of maintaining species for conservation. The Gesneriad Society and certified conservation growers (see below) in the Society are responsible for growing and maintaining the specimens of concern. In this way, the two institutions are partnering to manage what we are calling the *metacollection of rare and endangered gesneriads* – a dispersed collection of plants that are maintained and managed by individuals around the world as part of a single collection.

Certified Conservation Growers

The difficulties in managing a metacollection are numerous, and qualified growers are needed to not only propagate and maintain species of concern but also to keep accurate records related to these collections. We are developing a certification program, similar to the Society's Judging School, where interested growers will be trained in conservation techniques and then be tested for final certification. Basic knowledge required of conservation growers will include demonstrated ability to accurately maintain labeling of specimens with complete propagation histories. Conservation growers must adhere to rather strict, but necessary, guidelines in propagating conservation species and cannot randomly propagate, cross-pollinate, hybridize, or distribute material without authorization from the Conservation Growers Alliance. Conservation growers must also demonstrate a basic knowledge of plant breeding and reproduction, such as understanding why cuttings are the same genetic individual as the "parent" while seed-grown plants are not. These and other concepts will be taught in the Conservation Growers Certification School as part of future programs at our annual Convention. Our goal is to have the first of these training sessions in 2011 at the Gesneriad Society Annual Convention in Philadelphia.

Moving Forward

The initial focus for the Gesneriad Conservation Alliance has been to take a preliminary census of what species are in cultivation. This census is providing us with indispensable data for setting up and managing the metacollection. Through voluntary reports from Society members, we will compile these data to assess what species are stable in cultivation and identify those that require various levels of intervention to maintain. Some species simply require a greater distribution to ensure their survival while others require intensive efforts and monitoring to maintain. The later species will fall under the care of certified conservation growers.

The second stage will be a concerted effort to identify species that may face imminent destruction in the wild. Collecting these data will require contributions from field biologists and collectors as well as other organizations concerned with the loss of tropical biodiversity. The goal will be to collect and maintain appropriate numbers of individuals and to maintain accurate records of these plants for long-term, off-site conservation as well as potential reintroductions in the future.

Prospects

Conservation of our planet's biodiversity is a daunting challenge given the myriad of threats facing our modern world. However, organizations like The Gesneriad Society that derive their mission from the natural world have a responsibility to face these challenges and attempt to overcome them. Through a concerted effort among scientists, conservationists, and gesneriad enthusiasts, we have the potential to protect many species of gesneriads from extinction. In the coming months and years, we hope as a Society to affect long-term change and become not only a group of individuals fascinated with the natural world but also good stewards of it.

Gasteranthus atratus is closely tied to the early history of Selby Gardens. Endemic to Ecuador, this species was first collected in 1977 by Selby staff (Dr. Michael Madison and Dr. Calaway Dodson) and in 1978 was named and scientifically described by Selby gesneriad researcher Dr. Hans Wiehler. Now listed as "Critically Endangered" by the IUCN, the species may never have been known to exist if not for the work of Selby Gardens' research and horticulture staff and is now on permanent display in the Conservatory. (photo by John R. Clark)

The Living Gesneriad Collection at the Marie Selby Botanical Gardens

Angel Lara, Greenhouse Manager
Marie Selby Botanical Gardens, Sarasota, Florida, USA

The Marie Selby Botanical Gardens, founded in 1973, has historically focused on the study and display of orchids, bromeliads, and gesneriads as part of the institution's emphasis on epiphytes, those plants that grow on other plants. As a member of Selby Gardens' original research team, Dr. Hans Wiehler led the work on the Gesneriaceae. While there, he published many articles related to gesneriad biology and taxonomy and worked to build an extensive living collection of gesneriads, at the time arguably the largest in the world. Dr. Wiehler left Selby Gardens in the early 1980s to pursue his own research goals and with his departure, gesneriad research ceased at the Gardens. Without his expert care, the living gesneriad collection also fell into disrepair and many specimens were eventually lost.

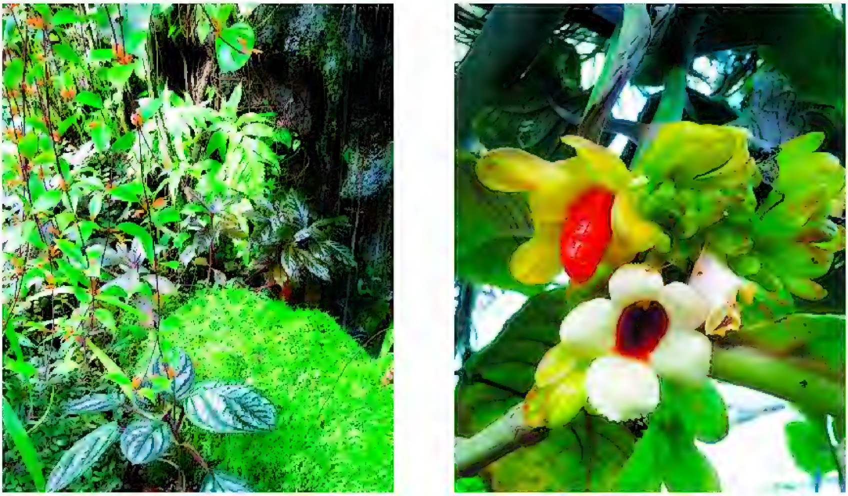
When I came to Selby Gardens as greenhouse manager in 2008, the living gesneriad collection was a shadow of its former self, with scarcely 100 accessions. However, interest in gesneriads at the Gardens had been recently rekindled by the donation of Dr. Wiehler's herbarium, spirit, and literature collections. Numerous Gesneriad Society members had begun volunteering at the Gardens, and Jeanne Katzenstein, Larry Skog, Bruce Holst, and John R. Clark were working to establish a permanent gesneriad research program. In 2007, this became reality with the formation of the Gesneriad Research Center at Selby Gardens. After finishing his doctorate degree, the newly minted Dr. Clark returned to Selby as director of the new Center.

Angel Lara with part of the research collection of gesneriads at Selby Gardens

I have been working with John, Jeanne, and other volunteers to improve the gesneriad collections. While John and other Selby Gardens' botanists have been bringing in new specimens for propagation and study, I have been working to better cultivate and display this diverse collection. I have also been working to advance horticultural technique as well as to develop a comprehensive Integrated Pest Management (IPM) program to improve the care to the Gardens' living plant collection, a critical step in managing often chemically sensitive gesneriads.

In recent months the gesneriad collection has received a facelift. It was moved to a different greenhouse for better culture and optimal

A section of the Display House at Selby Gardens now with signage near some of the permanent gesneriad plantings



Permanent and rotating gesneriads on display in the Conservatory:

Drymonia turrialvae and *Nautilocalyx lynchii* (in ground) and *Aeschynanthus hartleyi* (hanging)

Drymonia macrantha in flower and fruit growth, and we've received new and exciting accessions from recent expeditions by staff plus donations from hobby and commercial gesneriad growers. In our Tropical Conservatory we have successfully introduced the difficult-to-grow *Gasteranthus atratus* onto the rock wall near a waterfall. The planting is doing remarkably well and is spreading beyond its initial location and blooming periodically.

Now when visitors and members come to Selby Gardens' Tropical Conservatory they are able to see plants of *Drymonia ecuadorensis, D. turrialvae, Codonanthe wiehleri, Columnea ornata*, and many other interesting gesneriads including three different varieties in the genus *Episcia* growing naturally throughout the conservatory. One of my favorite gesneriads is the shrubby or small tree genus *Cyrtandra*. Important to Selby Garden's gesneriad research, these arborescent gesneriads are not what most people think of when they hear about the African violet family.

Gesneriad research and display at Selby Gardens is moving forward at a rapid pace thanks to the efforts of dedicated staff and volunteers interested in knowing and teaching others about gesneriads. Please visit our gardens and see for yourself the diversity of our gesneriad collection and the many botanical layers that make up this wonderful and exciting botanical garden.

Note: I would like to thank Dr. John R. Clark, Jeanne Katzenstein, Mike McLaughlin, Bruce Holst, Maida Lara, and my amazing and devoted volunteer staff for all helping to make Selby Gardens the gardens for the study, display, and conservation of gesneriads.

Part of the gesneriad collection in Research Greenhouse No. 1
(photos at Selby Gardens by J. R. Clark and J. Katzenstein)

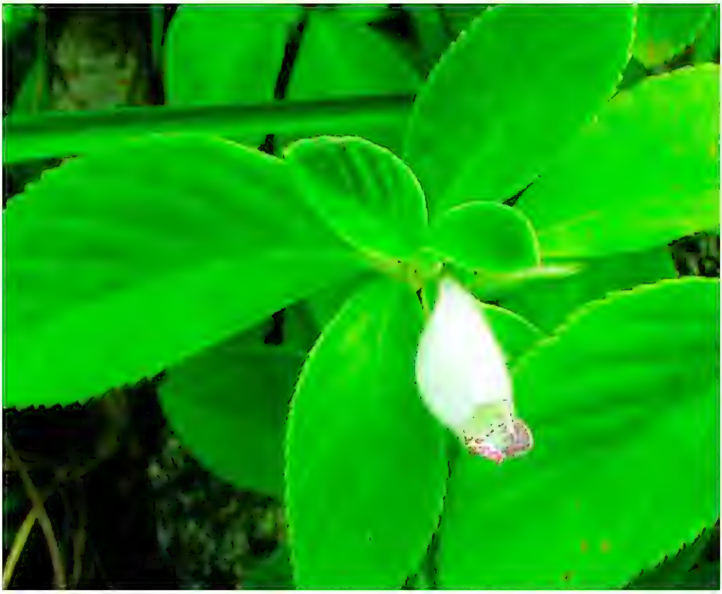
Gesneriad Hunting in Belize (Part 2)

Ron Myhr <rmyhr@pathcom.com>
Ashburn, Ontario, Canada

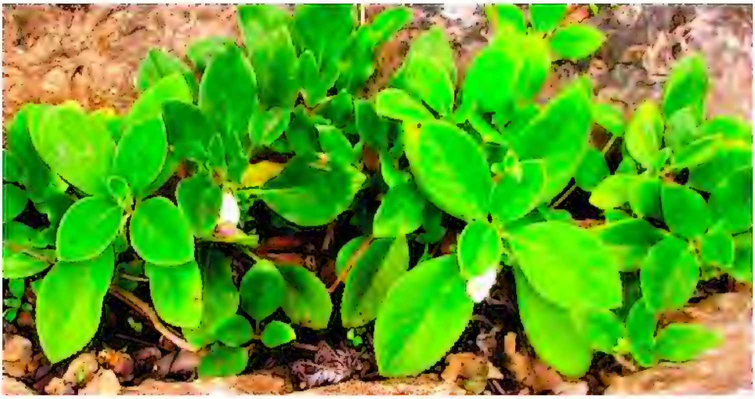
Back in 2005, I had a fun adventure in Belize hunting for a mysterious rhizomatous plant that had been reported from this small Central American country but never properly described. I found the plant, now generally conceded to be a variant of *Amalophyllon rupestre*, and reported on my adventure in GESNERIADS 57 (1) in the article "Gesneriad Hunting in Belize."

During my search for the *Amalophyllon* species, I made the acquaintance of several interesting people. Among these were the staff of the Belize Botanic Garden (BBG, www.belizebotanic.org), especially Heather Duplooy (botanical curator) and her husband Brett Adams (garden foreman), and environmental consultant Jan Meerman who is responsible for an extensive database of Belizean flora, fauna and environmental matters (http://www.biodiversity.bz/).

In early 2007 Jan contacted me and sent some photos of an apparent gesneriad observed on limestone hills in the coastal plain not far from the capital, Belize City. He wondered what the plant might be. I circulated the photos to John Boggan at the Smithsonian and to other experts. The consensus was that it seemed to be an *Alsobia*, perhaps a new species or perhaps a variant of *A. punctata* (although the flower appeared quite different). Jan subsequently collected the plant; it was completely leafless at the time of collection, but it eventually sprouted leaves in his garden and grew vigorously and flowered.



Alsobia sp. RM2010-1 growing in cultivation
(photos by Jan Meerman)



Alsobia sp. RM2010-1 growing *in situ* in Belize

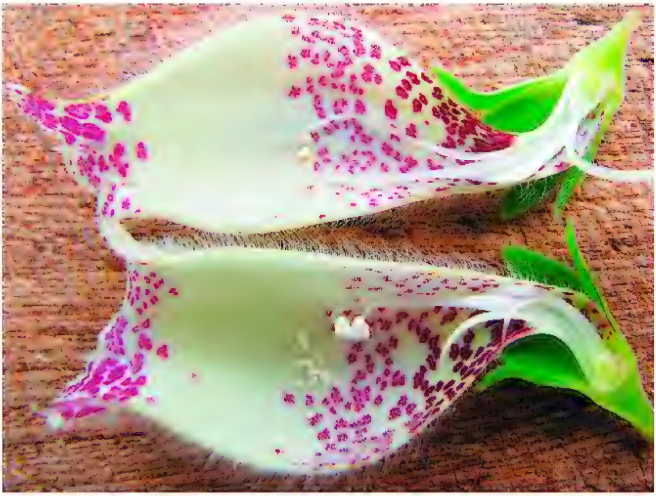
Then in 2009, Brett Adams contacted me and asked about an apparent gesneriad in the collection of the BBG. This plant had been collected by Martin Meadows, my guide during the *Amalophyllon* search. It flowered and appeared to be similar, if not identical, to the plant Jan had collected.

As it turned out, it seems that Jan and Martin had gone collecting together a few years ago on the limestone hills in the coastal plain in central Belize. Martin obtained some of this putative *Alsobia*, and proceeded to grow it on at the BBG, but basically forgot about it. Subsequently, Jan re-visited the general area (but a different set of hills), and observed and then collected his specimens. The two plants are almost certainly the same species, but clearly different collections from different semi-isolated hills. The environment where the plants grow is very unusual as described in a personal communication from Jan Meerman in February 2009:

> "The habitat along the coastal road is really interesting. It's an alluvial plain with older limestone hills poking through the clay. At the contact point between alluvial clay and limestone rock, the acid clay dissolves the rock resulting in sinkholes and caves and often "moat" like lakes. The diversity is phenomenal there and there are still a lot of undescribed species there. The difficult terrain has no doubt deterred many botanists."

At the time Jan first observed the plants he subsequently collected, he had waded through a substantial pond surrounding a hill (avoiding crocodiles) and found the plants growing just above the high-water mark. Upon his return to collect the plants during the dry season, the pond had disappeared and he walked across dry land to reach the hill. The plants were completely leafless, demonstrating their deciduous habit, a rarity in the gesneriads. The plants revived readily when provided with water back at Jan's garden.

As can be seen from the photos, the species is clearly an *Alsobia*, and vegetatively is very similar to *A. punctata*. It is aggressively stoloniferous and produces very woody stems that clearly hold enough water and nutrients to allow for seasonal dormancy when all leaves are dropped. It seems that in cultivation it does not require a dormant period to thrive, although a period of drought may be necessary to induce full flowering.



Dissected view of the flower showing the distinctive spotting

While similar in general habit and foliar appearance to *A. punctata*, the flower seems to be very different. It is significantly pouched and lacks most of the fringe characteristic of all other *Alsobia* species. The flower is pure white and is attractively spotted purple. The spots occur on the small limb, as well as in the flower interior, especially toward the base. This is well-illustrated in the dissected view of the flower.

Alsobia punctata has been reported from Belize, but it seems this might be in error as noted in a personal communication from John Boggan in March 2010:

> "*A. punctata* has been reported from Belize, but erroneously. The record is based on a single collection with poor flowers in our herbarium that was identified as *A. punctata* … on the basis of its stoloniferous habit. But as you've noted, the new Belize species is very similar to *A. punctata* vegetatively. A second look at this specimen shows that the flowers lack the toothed lobes of *A. punctata*, and it is almost certainly the same species as the one you collected …. I'm absolutely convinced the Belize plant is a new, undescribed species. The flower is the clincher as it is so unlike the flowers of the other three known species."

Full analysis will take some time, and the collected material may yet turn out to be a variant of *Alsobia punctata*. In any event, it is clearly quite different and represents an interesting addition to the *Alsobia* species already in cultivation.

I was able to obtain live material of both collections as well as seed from that being grown by Jan Meerman. Permission to export the material was obtained from the Belize Department of Forests, and import permits were obtained from the Canadian government authorities. I have distributed the material being grown by Jan as "*Alsobia* sp. RM2010-1". I have differentiated the seeds from the live material, with the seeds labelled "*Alsobia* sp. RM2010-1s". Material from the Belize Botanic Garden has been distributed with the label "*Alsobia* sp. RM2010-2".

I have already seen the material I've distributed described as *Alsobia* sp. "Belize", and this is probably acceptable – however, in all cases the collection number (e.g., RM2010-1, as appropriate) should also be appended.

Acknowledgements:

Heather DuPlooy and Brett Adams have left the Belize Botanic Garden and taken up residence in Florida; I'm indebted to them for their help over several years of exploration of Belizean flora. After their departure, I received assistance from Jane Beard (BBG business manager), Sinead McCormick (garden foreman) and Rudy Aguilar (outside foreman), and am grateful for permission to collect and export samples of their *Alsobia* species.

Jan Meerman has been particularly helpful, collecting plants to order, and allowing me to take samples back with me. His extensive knowledge of Belizean natural systems has been hugely helpful to me, and I am very grateful for his assistance.

World Gesneriad Research Conference 2010

Gesneriad Research Center

GRC

hosted by the Gesneriad Research Center and Selby Gardens in Sarasota, Florida USA – October 13-15

Gesneriad Research Conferences are international meetings of Gesneriaceae researchers, students, and lay enthusiasts who come together periodically with the goal of understanding and promoting knowledge of the plant family Gesneriaceae. The next international conference is being hosted by the Gesneriad Research Center and the Marie Selby Botanical Gardens in Sarasota, Florida, from 13-15 October 2010 (followed by a weekend gesneriad show and sale at Selby Gardens sponsored by the Suncoast and Tampa Bay Gesneriad Society Chapters).

The objectives of WGRC 2010 are to provide opportunities internationally for new researchers and students of Gesneriaceae to enter into working discussion groups, formalize existing informal international collaborations and working groups into a virtual organization by initiating a web-based Gesneriaceae coalition, and summarize the current state of knowledge on Gesneriaceae phylogenetics with the ultimate goal of creating a comprehensive Gesneriaceae phylogeny. The keynote address will be delivered by Prof. Anton Weber, distinguished Gesneriaceae researcher and faculty emeritus of the University of Vienna, Austria. WGRC 2010 will also provide opportunities meant to broaden awareness of the plant family Gesneriaceae including conservation-based lectures/discussions and a gesneriad exhibition where rare and lesser-known gesneriads from around the world will be on public display.

For more information or to register for the conference, visit the Gesneriad Research Center Blog <http://gesneriadresearchcenter.blogspot.com>.

I Don't Need It!

Ben Paternoster <ben9@optonline.net>
Chairperson, Shows and Judging

The latest edition, which is also the first electronic edition, of our "Flower Show Manual – A Guide for Show Personnel, Judges, and Exhibitors" is now accessible free to members from the Society website. Members without computer access and non-members can purchase a copy from the Society Publications Committee (see below).

Note that the manual is written for three groups – show personnel, judges, and exhibitors. It is to the third and largest group, exhibitors, that I address my comments in this article. Members of the Society as well as non-members are potential exhibitors. What information can be found in this publication that would be of value to exhibitors in shows sanctioned by The Gesneriad Society?

The most relevant sections for exhibitors are Score Sheets and Score Sheet Definitions. The section **Score Sheets** contains copies of all the score sheets used in a typical Society show. Reading the score sheets, which are specific to classes, will provide the exhibitor with information about the criteria that the judges use to evaluate an entry in that specific class. When confronted with terminology that may not be perfectly clear, turn to the **Score Sheet Definitions** section to find more detailed explanations of terminology together with examples.

The **Awards Guidelines** section explains the criteria for awards including all awards beyond the class awards of blue, red, yellow, and honorable mention. The Gesneriad Society employs standard competitive judging. Understanding what that implies explains how an entry that scores 90 or more points may not be awarded a blue ribbon.

The **Characteristics of Gesneriads** section contains information on the various growth patterns of gesneriads with guidelines for judges as to what they should reward or penalize when evaluating an entry. Knowing this information helps the exhibitor to avoid pitfalls in preparing an entry.

Finally, the section **Brief Descriptions of Selected Genera** may assist an exhibitor to identify an unknown entry and/or provide clues as to how to provide proper cultural conditions. This section is designed to supplement the information contained in the publication "How to Know and Grow Gesneriads."

I know that all of you understand how foolish you would be to participate in any competitive game without knowing the rules. You would be at a distinct disadvantage. While entering an exhibit in a flower show is not a competitive game, it is a competition. Why place your entry at a disadvantage because you did not take the time to find out the facts? Exhibitors, you need this manual!

The 2010 Flower Show Manual is available online to Society Members.
For a printed copy, contact Gesneriad Society Publications, 1122 East Pike Street, PMB 637, Seattle, WA 98122 (or order online at <www.gesneriadsociety.org>).

Gesneriad Register

Judy Becker, Registrar <hybridregistrar@gesneriadsociety.org>
Salisbury, Connecticut, USA

The following registrations should be added to the Registered Gesneriads List found in Appendix C of the 1990 Gesneriad Register.

071038	*Streptocarpus* 'Enter Laughing'	*S.* 'X-ray Vision' × *S.* 'Bristol's Lipstick'	Nancy Block
071039	*Streptocarpus* 'Escents'	*S.* 'Cape Essence' × *S.* 'Iced Pink Flamingo'	Nancy Block
071040	*Streptocarpus* 'Laura Sue'	*S.* 'Bristol's Landoodoe' × *S.* 'Bristol's Nose Print'	Nancy Block
071041	*Streptocarpus* 'Winter Wood'	*S.* 'Jackie' × *S.* 'Bethan'	Nancy Block
071042	*Sinningia* 'Ozark Coral Freckles'	*S.* unknown × *S.* 'Piglet'	David Harris
071043	*Sinningia* 'Ozark First Born'	*S.* 'Martha Lemke' × *S.* 'Ozark Coral Freckles'	David Harris
071044	*Sinningia* 'Ozark Pink Sunrise'	*S.* 'Martha Lemke' × *S.* 'Ozark Coral Freckles	David Harris
071045	*Sinningia* 'Ozark Rosy Tiger'	*S.* 'Martha Lemke' × *S.* 'Ozark Coral Freckles'	David Harris
071046	*Streptocarpus* 'Audrey'	*S.* mixed seed	Nancy Block
071047	*Streptocarpus* 'Black Magic Woman'	*S.* 'Lyn's Ruby Red' × *S.* 'Iced Pink Flamingo'	Nancy Block
071048	*Streptocarpus* 'Dime a Dance'	*S.* 'Bristol's Lipstick' × unknown	Nancy Block
071049	*Streptocarpus* 'Song Sung Blue'	*S.* 'Bristol's Ribbon Candy' × *S.* 'Bethan'	Nancy Block
071050	*Streptocarpus* 'Different Drummer'	*S.* 'Iced Pink Flamingo' × *S.* 'Cape Essence'	Nancy Block
071051	*Petrocosmea* 'Lexi'	*P. barbata* × *P. flaccida*	Jeff Foederer
071052	*Streptocarpus* 'Fernwood's Minuet'	*S. lilliputana* × *S.* 'Little Gem'	Lee Stradley
071053	*Streptocarpus* 'Fernwood's Mister Whiskers'	*S.* 'Chorus Girl' × *S.* 'Little Boy Blue'	Lee Stradley
071054	*Streptocarpus* 'Fernwood's Morning Sunrise'	*S.* 'Something Special' × self	Lee Stradley
071055	*Streptocarpus* 'Fernwood's Wee Willy'	*S.* unknown × *S.* unknown	Lee Stradley

***Streptocarpus* 'Enter Laughing'**, 2007, IR071038, Nancy Block, IL. (*S.* 'X-ray Vision' × *S.* 'Bristol's Lipstick'). Cross made Dec. 17, 2005, planted Feb. 23, 2006 and first flowered Oct. 14, 2006. Fertile but reproducible only vegetatively. Compact rosette. Leaves bullate, medium green, occasional light red reverse, 4.75 in. long × 2 in. wide, ovate with slightly serrate margin, acute tip and cuneate base. Calyx split. Peduncle 2.75 in. tall with 2-3 flowers. Corolla salverform, 1.5 in. long × 1.75 in. wide, red violet with darker veining on all petals, feathered edges.

***Streptocarpus* 'Escents'**, 2007, IR071039, Nancy Block, IL. (*S.* 'Cape Essence' × *S.* 'Iced Pink Flamingo'). Cross made Dec. 17, 2005, planted Mar. 29, 2006 and first flowered Feb. 12, 2007. Fertile but reproducible only vegetatively. Large rosette, vigorous grower. Leaves lightly bullate, medium green, to 10 in. long × 3.25 in. wide, elliptic with slightly serrate margin, acute tip and cuneate base. Calyx split. Peduncle 6.25 in. tall with 1-3 flowers. Corolla salverform, 2.5 in. long × 2.75 in. wide, light pink to candy pink with dark red lines spreading from white throat onto lower three lobes. Flowers are large and long lasting, fragrant of the *vandeleurii* type.

***Streptocarpus* 'Laura Sue'**, 2007, IR071040, Nancy Block, IL. (*S.* 'Bristol's Landoodoe' × *S.* 'Bristol's Nose Print'). Cross made May, 2006, planted July 2006 and first flowered Feb. 19, 2007. Fertile but reproducible only vegetatively. Very small growing, compact rosette with leaves held horizontally. Leaves bullate, medium green, 4.5 in. long × 1.5 in. wide, linear with barely serrate margin, acute tip and cuneate base. Calyx split. Peduncle 3 in. tall with 2-4 flowers. Corolla salverform with extra petal in throat, white with red violet markings on lower petals.

***Streptocarpus* 'Winter Wood'**, 2007, IR071041, Nancy Block, IL. (*S.* 'Jackie' × *S.* 'Bethan'). Cross made Dec. 18, 2005, planted Feb. 15, 2006 and first flowered Sept. 28, 2006. Fertile but reproducible only vegetatively. Medium rosette. Leaves bullate, medium green, 7 in. long × 3" wide, elliptic with slightly serrate margin, acute tip and cuneate base. Calyx split. Peduncle 5.5 in. tall with 3-4 flowers. Corolla salverform, 1.75 in. long × 2 in. wide, white with lavender lines on lower three lobes, two pale yellow lines in throat.

***Sinningia* 'Ozark Coral Freckles'**, 2007, IR071042, David Harris, MO. (*S.* unknown × *S.* 'Piglet'). Cross made Nov. 1996, planted May 1997 and first flowered Dec. 1997. Fertile but reproducible only vegetatively. Miniature rosette. Leaves dark green with red veins, 1.5 in. long × 1.56 in. wide, ovate with serrate margin, acute tip and cordate base. Calyx split, green. 1 flower per peduncle. Corolla salverform with frilled edge, 0.94 in. long × 1 in. wide, coral with dark rose freckles mostly arranged in lines. Available from hybridizer.

***Sinningia* 'Ozark First Born'**, 2007, IR071043, David Harris, MO. (*S.* 'Martha Lemke' × *S.* 'Ozark Coral Freckles'). Cross made Jan. 2003, planted Feb. 2003 and first flowered Oct. 2003.

Fertile but reproducible only vegetatively. Miniature rosette. Leaves dark green with red veins, 2.56 in. long × 2.5 in. wide, ovate with serrate margin, acute tip and cordate base. Calyx split, green. 2-3 flowers per peduncle. Corolla salverform, single to double, with frilled edges, 1.25 in. long × 1.375 in. wide, dark fuchsia with variable amounts of orange on outer edges, fuchsia dots and stripes in white throat. Available from hybridizer.

***Sinningia* 'Ozark Pink Sunrise'**, 2007, IR071044, David Harris, MO. (*S.* 'Martha Lemke' × *S.* 'Ozark Coral Freckles'). Cross made Jan. 2003, planted Feb. 2003 and first flowered Sept. 2003. Fertile but reproducible only vegetatively. Miniature rosette. Leaves medium green, red veins on back, 2.5 in. long × 2.25 in. wide, ovate with serrate margin, acute tip and cordate base. Calyx split, green. Up to 2 flowers per peduncle. Corolla salverform with frilled edge, 1.5 in. long × 1 in. wide, medium pink with white, yellow throat with pink lines extending onto lower three lobes. Available from hybridizer.

***Sinningia* 'Ozark Rosy Tiger'**, 2007, IR071045, David Harris, MO. (*S.* 'Martha Lemke' × *S.* 'Ozark Coral Freckles'). Cross made Jan. 2003, planted Feb. 2003 and first flowered Sept. 2003. Fertile but reproducible only vegetatively. Miniature rosette. Leaves dark green with red veins, 1.75 in. long × 1.81 in. wide, ovate with serrate margin, acute tip and cordate base. 1 flower per peduncle. Corolla salverform, 1 in. long × 1.125 in. wide, bright rose with a frilled dark rose edge, yellow to creamy white throat with dark fuchsia spots. Available from hybridizer.

***Streptocarpus* 'Audrey'**, 2007, IR071046, Nancy Block, IL. (*S.* mixed seed). Cross planted July 29, 2005, first flowered Mar. 2006. Fertile but reproducible only vegetatively. Medium rosette. Leaves slightly bullate, dark green, 8 in. long × 1.75 in. wide, linear with slightly serrate margin, acute tip and cuneate base. 2-3 flowers per 6 in. peduncle. Corolla salverform, 2.5 in. long × 2.25 in. wide, opens red, maturing to two tone with a dark red bib on lower lobes, darker stripes radiating from throat onto all lobes, two white marks in center.

***Streptocarpus* 'Black Magic Woman'**, 2007, IR01047, Nancy Block, IL. (*S.* 'Lyn's Ruby Red' × *S.* 'Iced Pink Flamingo'). Cross made May 29, 2006, planted Sept. 2006 and first flowered Apr. 2007. Fertile but reproducible only vegetatively. Medium rosette. Leaves bullate, medium green, 6.5 in. long × 2.25 in. wide, elliptic with serrate margin, acute tip and cuneate base. 2-3 flowers per peduncle. Corolla salverform, 2 in. long × 2 in. wide, deeply ruffled, dark purple with lighter throat.

***Streptocarpus* 'Dime a Dance'**, 2007, IR071048, Nancy Block, IL. (*S.* 'Bristol's Lipstick' × unknown). Cross planted Feb. 2005 and first flowered Sept. 18, 2006. Fertile but reproducible only vegetatively. Medium rosette. Leaves slightly bullate, medium green, 6.5 in. long × 2.25 in. wide, elliptic with slightly serrate margin, acute tip and cuneate base. 2-4 flowers per 3-3.5 in. peduncle. Corolla salverform, 1.75 in. long × 1.75 in. wide, deep magenta pink with white reverse, lighter upper lobes, white throat with darker veining on all lobes.

***Streptocarpus* 'Song Sung Blue'**, 2007, IR071049, Nancy Block, IL. (*S.* 'Bristol's Ribbon Candy' × *S.* 'Bethan'). Cross made Sept. 2, 2006, planted Nov. 4, 2006 and first flowered Apr. 2007. Fertile but reproducible only vegetatively. Medium rosette. Leaves slightly bullate, medium green, 7.5 in. long × 2.5 in. wide, linear with slightly serrate margin, acute tip and cuneate base. 3-5 flowers per 6 in. peduncle. Corolla salverform, 1.75 in. long × 1.75 in. wide, blue with white reverse and dark purple markings on all lobes, two white fangs in lower throat.

***Streptocarpus* 'Different Drummer'**, 2007, IR071050, Nancy Block, IL. (*S.* 'Iced Pink Flamingo' × *S.* 'Cape Essence'). Cross made Dec. 17, 2005, planted Mar. 25, 2006 and first flowered Jan. 2007. Fertile but reproducible only vegetatively. Large rosette. Leaves bullate, variegated white and different shades of green, 11 in. long × 4 in. wide, linear with slightly serrate margin, acute tip and cuneate base. Calyx split. Peduncle 5 in. tall with 1 flower. Corolla salverform, 2.75 in. long × 2.5 in. wide, opens dark red-purple and within days lightens to overall color dusty red-purple with a wide, brighter red-purple edge on all petals, throat pale mauve with bright red-purple lines.

***Petrocosmea* 'Lexi'**, 2007, IR071051, Jeff Foederer, Netherlands. (*P. barbata* × *P. flaccida*). Cross made Sept. 20, 2006, planted Jan. 19, 2007 and first flowered Nov. 15, 2007. Sterile and reproducible only vegetatively. Rosette, intermediate between parents in appearance. Leaves slightly hairy, medium to gray green, 2 cm long × 2.5 cm wide with 1 cm petiole. Peduncle 5 cm long with one flower. Flowers rotate, 1.3 cm in diameter, lilac/blue with a small spot of yellow in the throat.

***Streptocarpus* 'Fernwood's Minuet'**, 2007, IR071052, Lee Stradley, NY. (*S. lilliputana* × *S.* 'Little Gem'). Cross made July 4, 2005, planted Oct. 2005 and first flowered June 2006. Fertile but reproducible only vegetatively. Miniature rosette. Leaves green, 4 to 6 in. long × 0.75 in. wide, linear with serrate margin and acute tip. Calyx green, split, 0.125 in. long. Peduncle 2 to 3 in. tall with 2 flowers. Corolla salverform, 1 in. long × approx. 1 in. wide, lavender flowers with yellow center.

Streptocarpus **'Fernwood's Mister Whiskers'**, 2007, IR071053, Lee Stradley, NY. (*S.* 'Chorus Girl' × *S.* 'Little Boy Blue'). Date of cross, planting, and first flowering unknown. Fertile but reproducible only vegetatively. Rosette. Leaves green, 12 in. long × 3 in. wide, linear with serrate margin and acute tip. Calyx green, split, 0.125 in. long. Peduncle 6 in. tall with 2-3 flowers. Corolla salverform with ruffled edges, 1 in. long × 2 in. wide, white with light red veining from the center to mid way out the lower three petals, 2 very light yellow stripes between veins.

Streptocarpus **'Fernwood's Morning Sunrise'**, 2007, IR071054, Lee Stradley, NY. (*S.* 'Something Special' × self). Dates of cross, planting and first flowering unknown. Fertile but reproducible only vegetatively. Rosette. Leaves green, 12 to 18 in. long × 3 in. wide, linear with serrate margin and acuminate tip. Calyx split, green, 0.125 in. long. Peduncle 8 to 12 in. tall with 2 to 6 flowers. Flowers salverform, light pink to white with dark pink center, dark pink lines radiating out from yellow throat.

Streptocarpus **'Fernwood's Wee Willy'**, 2007, IR071055, Lee Stradley, NY. (Parentage unknown but *S. kentaniensis* influence seen). Date of cross, planting and first flowering unknown. Reproducible only vegetatively. Rosette. Leaves green, 12 to 14 in. long × 1 in. wide, linear with serrate margin and acute tip. Calyx green, split, 0.125 in. long. Peduncle 12 in. tall with 12-18 flowers. Corolla salverform, 1 in. long × 1 in. wide, dark lavender with darker stripes on lower 3 petals, some yellow in throat.

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Gesneriads and Mainstream Horticulture

Gary K. Hunter, Grower, <gary@huntersgreenhouse.com>
Drumore, Pennsylvania, USA

The Gesneriad Society is an amazing organization. It has members who are the world's authorities on the Gesneriad family of plants. Show plants at the annual convention would be intriguing even to the casual observer. Why then are these interesting flowering plants not commonly produced in commercial horticulture?

Well, of course, some are. According to Reinhold Holtkamp, Jr. (Vice president of Holtkamp Greenhouses who developed Optimara violets), more than 100 million African violets (*Saintpaulia*) are produced worldwide each year. Florist Gloxinias (*Sinningia speciosa*) are at least in high-enough numbers that they are a line item on the US Horticulture Census (1.6 million per year).

After that, what to say? We grew Streptocarpus for 35 years. Back in the houseplant days, we were a propagator of the 'Nymph' series ('Constant Nymph', 'Purple Nymph', 'Mini Nymph', etc.), and sold small plants (liners) to other growers for finishing. The last I heard, the only national Streptocarpus propagator, Ecke/Oglevee, stopped their program.

Achimenes have come and gone over the years in spite of their being great flowering basket plants for shade equal to Impatiens. Their downfall is that the rhizomes don't break dormancy early enough to get flowers in May when people want to buy them.

Nematanthus still show up in some foliage assortments, with *N.* 'Cheerio' and *N.* 'Tropicana' being the most often seen. Other gesneriads like Columneas, Episcias, Sinningias, and Kohlerias are so seldom seen that it is a news item on the Gesneriphiles network if one is sighted.

If you review past issues of the GESNERIADS journal, writers continually have questioned the gesneriad world's lack of respect.

I guarantee you that gesneriads have been looked at as commercial plants. The industry's trade shows thrive on the new and unusual plant introductions. The category of tender perennial for use in mixed planters is huge. Hundreds are introduced every year. Very few make it through the system to become standards in the trade.

So what characteristics do gesneriads struggle against? Many, like Kohlerias, Sinningias and Columneas, suffer from cold-water burn – that combination of cold water and sun that browns the leaves making the crop unsalable. Of course, Saintpaulias burn and they made it through the system. What's up with that?

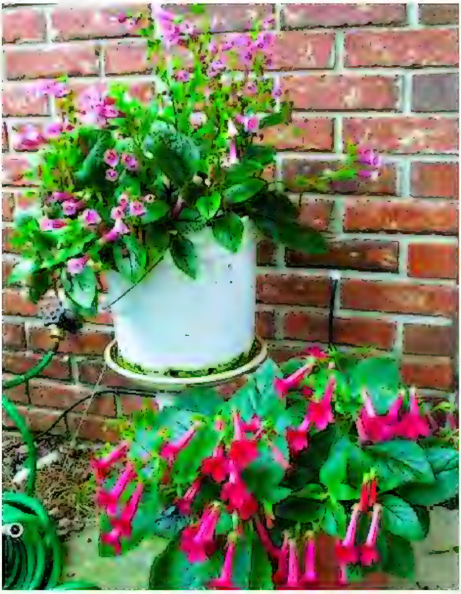
The last big killer is: Can the crop make it through the system? Can it be grown quickly, very close together, be packed for shipment, and be presented at retail with little breakage? And, of course, can it have a long shelf-life in harsh retail environments?

Back in the years when we sold plants at the New York Flower Show, the two most common questions were: Will this grow in my bathroom? Will this come up again next year?

Hidden in these two questions are some assumptions about the living environment of city dwellers. Some people have no garden earth and very little light to grow plants. The other half do have ground soil and want the benefit of planting it once and letting it take care of itself.

Garden centers sell millions of plants for the garden but fewer are actually going into the garden earth – it's too much work. More and more plants are going into planters, mixed containers, window boxes, and hanging baskets.

Some marketing observers have declared that the young customer is a decorator, not a gardener, who buys potted containers, takes them home, places them on the patio, and is satisfied with the color and overall effect. The project is done – instant garden.



Gesneriads growing and blooming well outdoors in northern Florida – on top is *Sinningia guttata* × (*sellovii* × probable 'Apricot Bouquet' seedling); below is *Sinningia* 'Prudence Risley' (photo by Jim Steuerlein)

My conclusions are these:

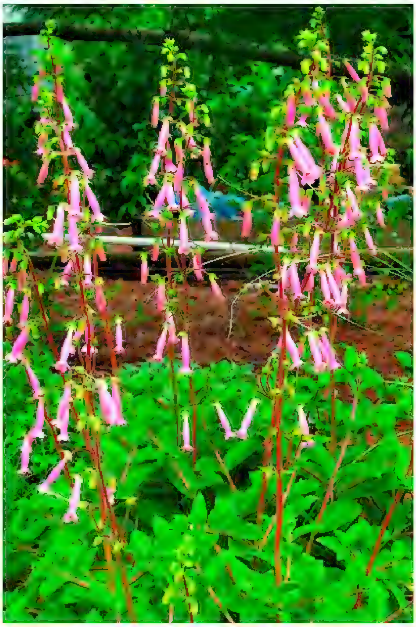
1. Whichever gesneriads can be grown for the patio container garden will succeed.
2. Winter-hardy perennial gesneriads have a chance but aren't there yet.

So what can you do to help gesneriads move into commercial horticulture? Here are six practical things to do:

1. If you see a well-grown gesneriad that you like, buy it!
2. Add categories to flower show schedules:
   a. Winter-hardy gesneriads
   b. Gesneriads grown in containers outside of the house or greenhouse (This won't work for shows held in cold weather, but The Gesneriad Society's convention shows are in July.)
   c. Table-top gardens (Basically a dish garden started inside that can be put outside on the picnic table.)

3. Continue to try any and all extra plants outside on the porch in mixed containers.
4. Continue to plant extra tubers and rhizomes in the ground to test for winter hardiness.
5. Continue to hybridize Sinningias for use as garden plants and, therefore, container plants that are the sweet spot of the market.
6. Start hybridizing Kohlerias, Sinningias, Streptocarpus, Columneas, etc, for tough, weather-proof, non-burning foliage.

Bio: Gary Hunter has followed gesneriads for 35 years as a commercial grower and sometimes member of The Gesneriad Society. His opinion is from the perspective of a grower who continually evaluated plants as "Plants for Planters". If you would like to comment, email <gary@huntersgreenhouse.com>.



Sinningia 'Arkansas Bells' planted outdoors in Fayetteville, Arkansas (USDA Zone 6b/7a with average annual minimum winter temperature around 0°F) (photographed by Jon Lindstrom)

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Rooting Recalcitrant Chirita

Michael Kotarski <mmk@niagara.edu>
Niagara University, New York, USA

Introduction

Chirita is an old world genus of Gesneriaceae consisting of more than 150 species. Endemic to India, Southeast Asia and China, these plants are graceful and beautiful. This is especially evident in the slender sinuous species like *Chirita linearifolia* and *Chirita longgangensis*.

For all of their beauty, Chiritas are notoriously difficult to root from leaf cuttings. No matter what precautions are taken, they readily succumb to rot or fungus. Even when you use Rootone or a similar rooting product with hormones and fungicide, plants of this genus are reluctant to form plantlets from cuttings. In past years, I have failed several times to root particular species of *Chirita* … until now.

Generally, plants respond to growth hormones like auxins by producing more roots, and they respond to hormones like cytokinins by producing more shoots. Auxins are the hormones typically found in rooting powders. Some experiments I've done with *Saintpaulia* in tissue culture showed that these hormones have a dramatic effect on the development and growth of plantlets from cut leaf tissue. Altering the balance between the two types of hormones can produce either roots or shoots in abundance. The trick is to find the right balance of hormones to produce both roots and shoots.

Armed with this insight and a good deal of optimism, I set up a small experiment using an auxin and a cytokinin that are both inexpensive and readily available. Indol-3-acetic acid (IAA) is an auxin and N^6-furfuryladenine (kinetin) is a cytokinin. These are available from CAISSON Laboratories, Inc. (The ordering information is below.)

Methodology

The experiment treated leaf cuttings of a *Chirita linearifolia* × *C. balansae* hybrid with different proportions of IAA and kinetin. I used a pre-treatment instead of potting the cuttings directly into soil to be sure that all of the cells at the cut surface were exposed to the hormones. Four to five fresh leaf cuttings were sealed in a plastic bag with the cut ends in one of three pre-treatment options: Water; 10mg/L IAA or; 5mg/L IAA plus 5mg/L kinetin.

After 48 hours of this "pre-treatment," the cuttings were potted in regular potting media. Regular watering was done for 140 days with the same solution as the pre-treatment keeping the soil evenly moist. After the 140-day period, the hormone treatments were discontinued and plantlets were maintained on water with a regular fertilizing schedule. Light was supplied by two 25W cool white fluorescent bulbs at a distance of 20-25 inches. The plants were kept in a covered tray which reduced this bright light to a level tolerated by Chiritas and also reduced the need for frequent watering.

Results

After 30 days, the water-treated cuttings were necrotic, black, and shriveled. Three of the kinetin treated cuttings shared this fate. The remainder of the cuttings, although not completely necrotic, showed no visible shoots. These cuttings were uprooted to examine their root growth (Fig. 1). The remaining kinetin-treated cuttings had blackened and shriveled below the soil line or showed no root growth. In contrast, all four of the IAA plus kinetin-treated cuttings were healthy. Indeed, three of the four showed remarkable root development.

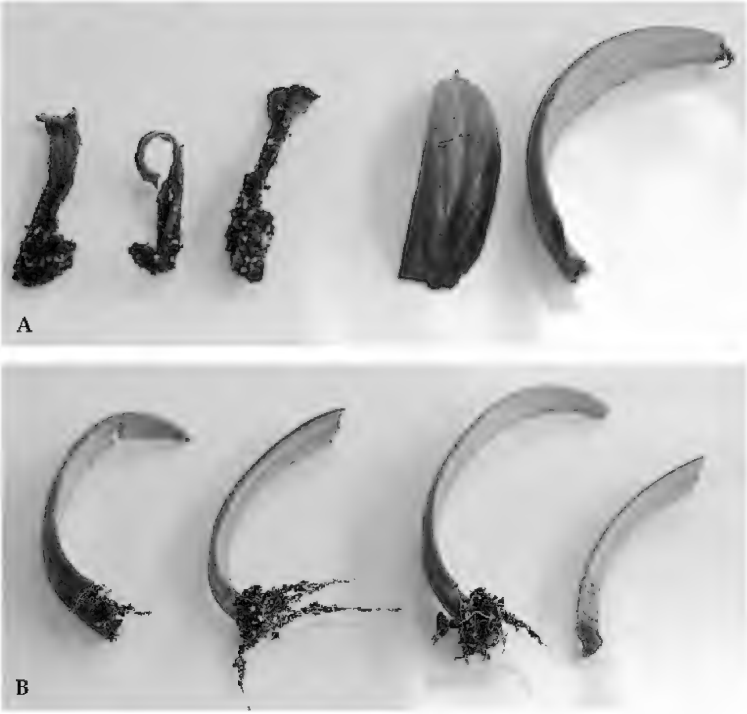


Figure 1. Cuttings of *Chirita linearifolia* × *C. balansae* (CCL2-10-05) at 30 days of treatment. A: Five cuttings treated with 5 mg/L kinetin. B: Four cuttings treated with 5 mg/LIAA plus 5 mg/L kinetin.

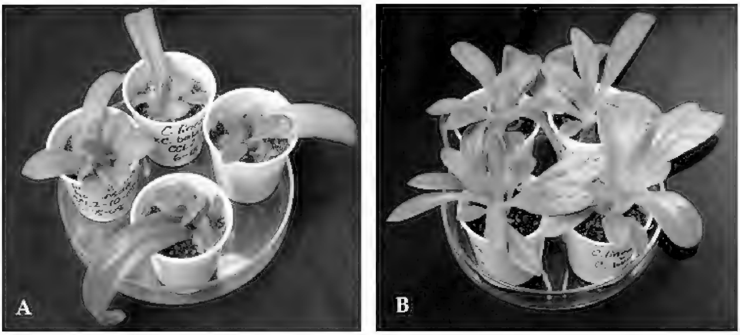


Figure 2. *C. linearifolia* × *C. balansae* (CCL2-10-05) hybrid plantlets from cuttings treated with 5 mg/LIAA plus 5 mg/L kinetin. A: Plantlets at 140 days. B: Plantlets at 260 days.

At 140 days into the experiment, all four of the IAA plus kinetin-treated cuttings had produced new shoots, even the cutting that had shown no roots at 30 days (Fig. 2A). At this writing, 260 days into the experiment, the plants are robust and healthy (Fig. 2B).

Conclusion

Plant hormones are responsible for regulating all aspects of plant growth, the branching of shoots and roots, fruit ripening, pollen maturation, and even parasite defense. Most plant hormones, including auxins and cytokinins, have different effects when used on different species of plants. A concentration of a hormone that works well to produce roots in one species may not produce roots at all in another. The concentrations of auxin and cytokinin that promote root growth without hindering shoot growth in *Chirita* produce predominantly shoots in *Saintpaulia* and hinder root development almost completely. To get the effect you want, it is necessary to approach these experiments with a willingness to engage in some hit-and-miss trials.

This experiment was a small one using only two different hormone solutions. To do real science, I would have used hundreds of cuttings to produce statistically significant data. But life is short and cuttings are scarce and just comparing the effects of plain water (or kinetin alone) to the effects of the IAA plus kinetin, shows pretty dramatic results. Although only nine cuttings were involved, it was an all-or-none response. It's useful to note that even though the IAA and kinetin were continued after roots had begun to form, the treatment did not seem to hinder shoot development and growth.

Additional Notes

Indol-3-acetic acid (IAA) catalog #I001 and N^6-furfuryladenine (kinetin) catalog #K001 are available from CAISSON Laboratories, Inc., 1740 Research Parkway, North Logan, UT 84341 (phone: 877-840-0500 <www.caissonlabs.com>). The 5 grams of Indol-3-acetic acid costs $8.75, 1 gram of kinetin costs $9.75 and shipping is $14.84. Note that only 5 mg of each are used for a liter of solution, enough for the entire experiment, so 1 gram is enough to treat over 800 cuttings.

Be aware that this form of IAA is not readily soluble in water and you'll have to first dissolve it in about a ml (~1/5 teaspoon) of isopropanol (rubbing alcohol). It is also light sensitive so solutions should be stored in the dark. If you use another vendor for the hormones, you may be able to get the water soluble form: Indol-3-acetic acid (sodium salt).

I used a modified Fisher's potting mix composed of 8 quarts (9 L) peat, 4 quarts (4.5 L) coarse vermiculite, 2 quarts (2.3 L) perlite, 2 quarts (2.3 L) generic potting soil, 1 quart (1 L) horticultural charcoal, 0.5 cup (120 mL) bone meal and 0.5 cup (120 mL) dolomite lime. This potting media has no special additives, so your media will likely work just as well or better.

In Memoriam

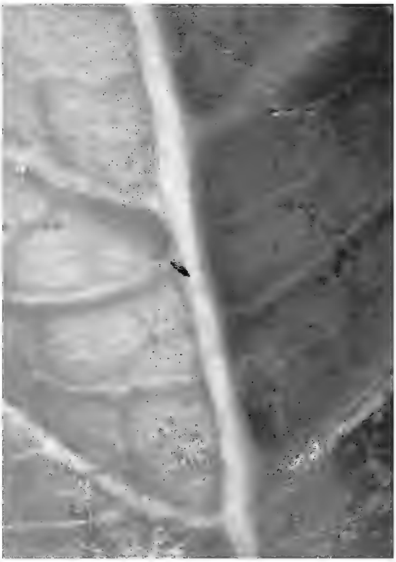
Daphne Yaremko	Bolton, Ontario, Canada
Robert Louis Hudak	Concord, California
Celine Chase	Redwood City, California
John Adney	Marion, Iowa

Back to Basics: Newly Acquired Plants

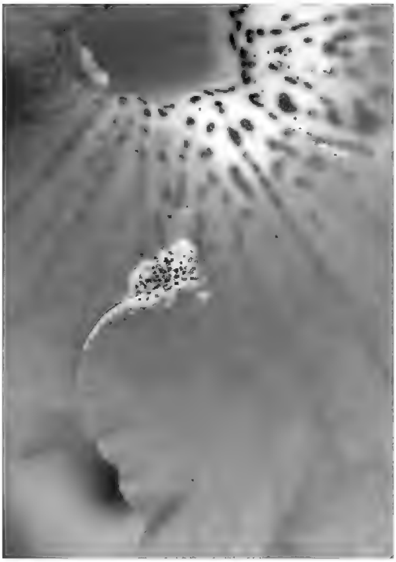
Dale Martens <dalemartens@mchsicom>
Sherrard, Illinois, USA

You bought a gesneriad, now what? Often a newly acquired plant that comes through the postal system wilts when removed from the packing material. If there is plastic wrap around it, or it's wrapped in moist newspaper, then it has had high humidity for a couple of days. The same is true for a plant purchased in a humid greenhouse. The plant needs to acclimate to room air for a couple of days. Put it in a plastic baggie, but don't close the baggie. If the plant comes from a noncommercial source, ask under what conditions the plant has been living such as natural window light, light stand, or outdoors. Ask about their fertilizer routine. If it's been on a light stand, ask what types of tubes were used and how many hours a day the lights were on. It's interesting that many expect a plant to adjust without knowing the previous environmental conditions.

My recommendations include getting rid of most of the soil surrounding the plant's roots and transplanting it into the mix you prefer. Check the root area with a magnifying glass for anything crawling or wiggling. Look closely where the stem meets the soil. If a small, white, rice-shaped thing moves, it's probably a soil mealy bug. Suspect the top of the plant as having insects, too. Look at the leaf node areas where cottony-looking foliage mealy likes to hide. Look at the backs of the leaves for larva and/or eggs. If the leaf blade has silvery or yellowed scratched areas, they may have been caused by thrips. If the flowers have scratched areas, especially with dark dots, that's



Look for thrips and silvery colored leaf damage



Thrips damage on an ×*Achimenantha* flower another sign of thrips. Thrips have different life cycle shapes/colors, so don't just look for the adult which also varies in color. I remove all the flowers and buds because thrips may be in the anthers. Is the center of the plant grayish? That could be mites. If it's a Streptocarpus, mites seem to cause grayish areas on the tips of the leaves rather than the center of the plant. If you find anything moving, then decide whether to throw out the plant, keep a leaf or plant tip, and/or use an insecticide. Many use a systemic insecticide on a new plant. Ask your chapter members what products they use or contact the commercial vendors on the Society's web site. If you receive a tuber or rhizome, use a magnifying glass to look it over. Until it sprouts, place it in a sealed plastic bag with moist vermiculite or sphagnum, but not perlite because that's white and you won't be able to see soil mealy.

A new plant should be isolated for about three months. If you can put it in another room and away from your plant collection, that's best. This might mean placing it in a terrarium setting if you don't have an isolation area. One should not place a new plant on a community mat-watering system. Wash your hands after you touch the isolated plant. Don't use the same tools without a thorough washing or disinfecting.

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Paul Susi, Development Chairperson
117-01 Park Lane South, Apt. C1A, Kew Gardens, NY 11418
For additional information, contact: <development@gesneriadsociety.org>.

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The Gesneriad Society Membership Secretary, Bob Clark,
1122 East Pike Street, PMB 637, Seattle, WA 98122-3916 USA

Changes of Address — Send changes of address to the Membership Secretary <membership @gesneriadsociety.org> 90 days prior to moving to avoid missing an issue. The Society is not responsible for replacing issues missed because of late notification of address changes. Back issues may be ordered from The Gesneriad Society Publications.

Renewals — Send dues to the Membership Secretary. A Renewal Notice is sent two months prior to the expiration date of your membership. (The expiration date is printed on your mailing label/membership card on the back cover of GESNERIADS.) Please remit your dues prior to the expiration date to avoid missing an issue as we are not responsible for replacing issues missed because of late payment of dues. Back issues may be ordered from Publications.

Application for Membership — *The Gesneriad Society, Inc.*

WELCOME – membership in our international society includes quarterly issues of *GESNERIADS – The Journal for Gesneriad Growers,* a copy of *How to Know and Grow Gesneriads*, a packet of gesneriad seeds and a wealth of information about our Chapters, Flower Shows, Publications, Research, Slide Programs and Seed Fund. Membership begins upon receipt of dues.

☐ **New Member** Date ____________________

☐ **Renewal** Membership # ____________________

Name ____________________
FAMILY NAME GIVEN NAME MIDDLE INITIAL

Address ____________________
STREET

____
CITY STATE ZIP CODE COUNTRY

Email ____________________ Telephone ____________________

(Rates in US$)	Mailing in US 1 year	Mailing in US 3 years	Mailing outside US 1 year	Mailing outside US 3 years
☐ **Individual**	$25	$70	$30	$85
☐ **Family**	$26	$73	$31	$88
☐ **Sustaining** (minimum)	$35	$105	$40	$120
☐ **Research** (minimum)	$50	$150	$55	$165
☐ **Life**	Mailing in US $375		Mailing outside US $450	

GESNERIADS is mailed first-class to members outside the US and bulk-rate within the US.

I wish to make an additional tax-deductible contribution of $ ____________

☐ Elvin McDonald Research Endowment Fund ☐ Nellie D. Sleeth Scholarship Endowment Fund
☐ Frances Batcheller Endowment Fund ☐ Convention Speakers Fund ☐ Gesneriad Research Center Fund
☐ In Honor ☐ Memory of ____________________

Please make checks or money orders payable in US$ on a US bank to: **The Gesneriad Society**

Or, charge my ☐ VISA, or ☐ MasterCard

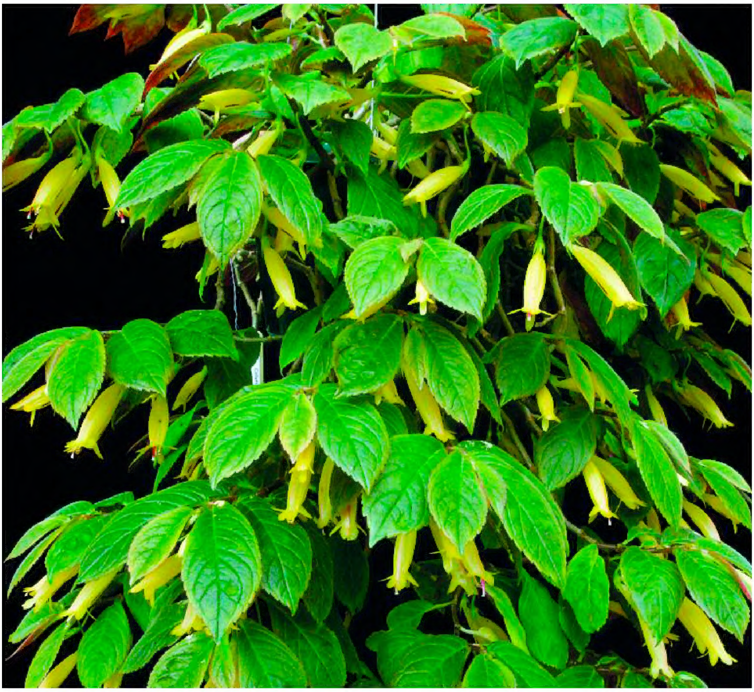
Card # ____________________Exp. Date____________

Signature ____________________Amount____________

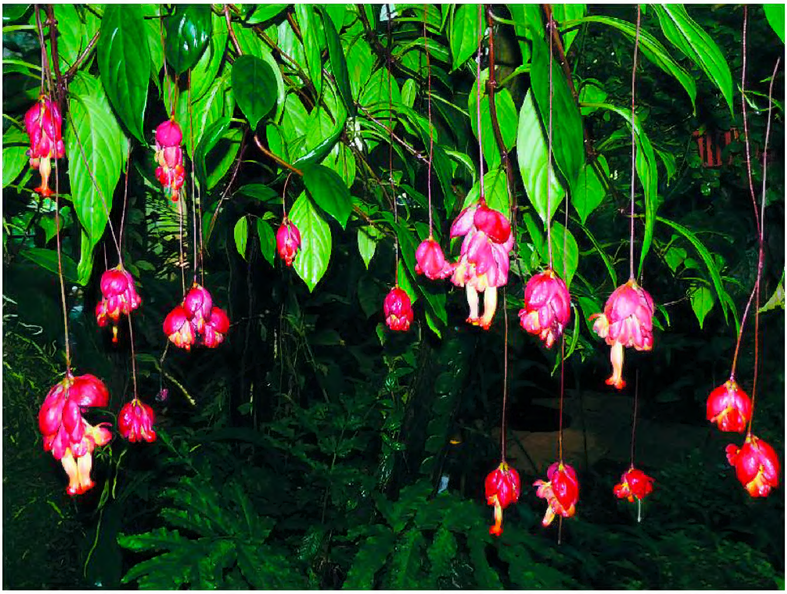
Mail to: **The Gesneriad Society Membership Secretary, Bob Clark,**
1122 East Pike St., PMB 637, Seattle, WA 98122-3916 USA

For application online: **www.gesneriadsociety.org**

Gesneriads on display in the conservatory at Selby Gardens:



Columnea citriflora (photo by Dr. Phil Nelson)



Drymonia pendula (photo by Bruce Holst)